



AGRICULTURAL RESEARCH INSTITUTE
PUSA



Dr. Panjabrao Deshmukh
Union Minister of Agriculture's

CIRCULAR LETTERS

Nos. XIII to XV

Part IV

MINISTRY OF FOOD & AGRICULTURE
GOVERNMENT OF INDIA



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MINISTRY OF FOOD AND AGRICULTURE

JAISALMER HOUSE

New Delhi, October 2, 1954.

DR. PANJABRAO S. DESHMUKH,
Minister for Agriculture,
Government of India.

MINISTER FOR AGRICULTURE'S CIRCULAR LETTER
No. XIII

MY DEAR FRIEND,

I am sorry that in spite of the fact that the last circular letter was more or less ready by the 6th September, the printing for various reasons took unusually long, with the result that the letter must have reached you only towards the end of the month. I must also express regret at the fact that some glaring mistakes have been committed from time to time. In one of the letters some of the paragraphs intended to be incorporated were left out, and even from the last letter, Appendix XV referred to in paragraph 31 of the letter has been omitted. There are also a number of obvious printing mistakes, which are also none too creditable. I wonder if I will succeed in eliminating these things in future, but I ask for your forgiveness.

2. As you might have seen from the last paragraph in my last letter, I had to spend more than half the month of September in the Nursing Home and more than a week at the residence when I was supposed not to cause any exertion to my eyes by reading. I am glad, however, that no untoward effect on my eyes was caused in spite of the fact that I observed the medical injunctions more in the breach. I hope to be in normal condition by at least the first Anniversary of these letters, namely, 2nd October, 1954, a celebrated day for India and its people for all future time to come.

3. The Chief Minister of Saurashtra had to wait quite a few months before I could fulfil my promise of visiting Saurashtra, but about the middle of September last year he personally saw me in Delhi with a pressing request that I must decide upon a tour programme of Saurashtra. The first Conference of the Ministers of Agriculture and Co-operation started on the 23rd September and barely closed on

the afternoon of the 29th, on which evening I left for Saurashtra by the night plane. My friend Shri Adani, Agriculture Minister, Saurashtra, had heard me mention my idea of a Monthly Letter at the Ministers' Conference, which proposal had met with their unanimous approval. It was Shri Adani who provided me the necessary incentive to draft and post my first circular letter from Porbunder on that very day, viz. the 2nd of October last year. •

4. I am glad that in spite of some delays now and again, and some mistakes here and there, I have been able to keep up the writing of these letters throughout the year. As mentioned in the 'Introduction' to the first volume in which are printed the first six letters of this series, I am myself conscious that the various contents of the letters differ from each other widely in their importance as well as in their style and value. But I am happy to say that whosoever has read them has appreciated them immensely and considered them useful from many points of view. Among other things, I think these letters will serve as a kind of an outline of the history of the progress of Agriculture in the country for the future, since they contain records of many tasks undertaken by the Ministry as well as an account of what is happening and what is likely to happen. I am glad that officers in the Departments of Agriculture have also found them useful and many competent persons have observed that information that is contained in these letters is not available easily to most of the people, and especially in a concise form. Other persons who have been reading them regularly have also encouraged me to continue them. Of course, I do not take all the compliments paid to me too literally as there is naturally a considerable amount of personal element as well as much generosity on the part of the various writers.

5. Much to my disappointment, I was prevented from attending the meeting of the F.A.O. National Liaison Committee of which I am the President, as it was on the very day of the meeting of this Committee, viz., the 30th August, 1954, that I was taken to the Nursing Home. Although I was unwell for quite a few days previous to that, I had managed to go through the report of the Sub-Committee which thrashed out most of the points to be dealt with at the meeting a day before the 30th August, 1954. This had given me a fairly complete idea of what the meeting would do. With Shri N. G. Ranga in the chair, I am sure the Committee did not feel my absence much.

6. I had already given you an idea of what the F.A.O. is, does and stands for, in my circular letter No. IV for January this year, which was issued soon after my return

from Rome where I had been to attend the Seventh Session of Conference of the F.A.O. But you may, I think, be able to refresh your memory by reading the following brief statement.

7. As you probably know, we have established a National F.A.O. Liaison Committee to assist the Government of India in the discharge of the obligations accepted by them in the preamble of the Constitution of the F.A.O. of the United Nations *viz.*, for raising levels of nutrition and standards of living of the people, securing improvements in the efficiency of the production and distribution of all food and agricultural products, bettering the condition of the rural populations and thereby contributing towards an expanding World economy. I am the Chairman of this Committee, while we have four representatives of the Lok Sabha and two representatives of the Rajya Sabha, along with representatives of rural people, on the Committee. A small Sub-Committee of the non-official members has also been formed, to examine in detail any proposals that may be referred to the main Committee.

8. I had suggested that all recommendations made at the main Conference of the F.A.O. should be studied both by the Sub-Committee and the main Committee, so that they could give guidance to the Government for implementing the important recommendations. The Sub-Committee had examined in great detail the recommendations made at the last F.A.O. Conference. These recommendations fall under two headings—*viz.* (i) recommendations concerning more than one country to be implemented by the F.A.O., and (ii) recommendations involving national action by the Member Governments. The National Liaison Committee which met on the 30th August, 1954, under the chairmanship of Shri N. G. Ranga, during my temporary absence due to illness, have made some valuable suggestions to that Government which may be of interest to you. I am accordingly sending for your information certain extracts from the minutes of the meeting (Appendix I).

9. In view of the success achieved during the last year, the campaign for the Japanese method of paddy cultivation this year has been organised on a more systematic basis. An over-all target of two million acres to be brought under this method has been fixed for the whole country for the current year. Most of the States from whom the figures are now available have accepted the targets fixed by us. In the case of Uttar Pradesh, Punjab, Bihar, Travancore-Cochin, Rajasthan, and Coorg, however, who have reported a short-fall as compared to the targets, the State Governments have

been requested to endeavour their utmost to attain the target figures. It would be interesting to note at the same time that in the case of Hyderabad the proposed target of 50,000 acres is expected to be considerably exceeded and the acreage which they expect to cover is 2.44 lakh acres. Similarly, according to reports, the target of Mysore is likely to be more than 50,000 acres against the target of 20,000 acres.

10. Initial reports received from most of the State and the Central Government's Regional Campaign Officers indicate that acting upon our instructions, extensive propaganda has been carried out by the State Governments to popularize this method in the shape of broadcast, propaganda meetings, field demonstrations, film shows and wide distribution of literature. Apart from the publicity material provided by the Centre free of cost, the State Governments at our instance have also printed their own literature in local languages. The Government of India have agreed to defray the expenditure on this account. Arrangements for providing temporary water shoots for paddy cultivation have also been made by the States of Punjab, PEPSU, Rajasthan and Delhi. The following publicity material has been distributed to the State Governments:

(1) Posters in Hindi and regional languages	2,80,000
(2) Flip Books in English	20,000
(3) Flip Books in Hindi	40,000
(4) Circulars in Hindi	60,000
(5) Circulars in English	10,000
(6) Flannel graphs	6,000

Besides, 45,000 copies of new pamphlet entitled "Japanese Method Gains Ground" in English and Hindi brought out by the Publicity Directorate have been distributed. This pamphlet sets forth in brief the results of the activities undertaken in 1953, the scope of work in 1954, and the measures recommended for adoption.

11. Besides the above, 48 films in English and Hindi obtained from the T.C.M. have been distributed to the State Governments free of cost. Arrangements have also been made for the free supply of 22 more films in regional languages to meet part of the demands for such language films. The Governments of Bombay and Madhya Pradesh have also prepared their own films on the Japanese method.

12. Other assistance has also been given to the State Governments in the promotion of the campaign as under:—

- (a) Free supply of ammonium sulphate for demonstration purposes;
- (b) Short term loan facilities for the purchase of further requirements of ammonium sulphate;
- (c) Free supply of 300 specimen paddy weeders;
- (d) Financial assistance to the extent of Rs. 1,14,215, (Rs. 45,000 loan and Rs. 69,215 grant) so far made available for specific items connected with the campaign.

13. The purpose for which such assistance has been given include:

- (a) loans for raising central nurseries;
- (b) loans and subsidies for intercultural implements;
- (c) grants for meeting establishment charges for publicity purposes;
- (d) grants for running administration blocks for demonstration purposes;
- (e) grants for purchase of projectors and propaganda vans, etc.
- (f) grants for purchase of exhibition sets, and
- (g) grants for award of Community Prizes.

A few more proposals from the State Governments are under consideration.

14. A special section at Headquarters has been created in this connection with six Regional Campaign Officers to watch the progress of the campaign and assist the State Governments in achieving the targets. Training facilities are provided with financial assistance from the Central Government at the Bombay Government's Training Centre at Karjat. Eight candidates from the States of Rajasthan, Orissa, Hyderabad and Vindhya Pradesh are at present undergoing a six months' training course there.

15. A few figures in regard to the Japanese rice cultivation are now available. In my replies to questions in the Parliament the figures given were incomplete. It has now been definitely ascertained that the total acreage reported to have covered during the previous year under the Japanese method was 4.02 lakh acres with an average yield which works out at 38.74 Maunds. I think it is correct to say that hardly anywhere in India the average yield was

more than 12 to 15 maunds. Actually our average production before we embarked on the Japanese method had gone as low as 443 lbs. per acre or less than 8 maunds. Compared to this average, therefore, we had an additional yield through Japanese method on 4.02 lakh acres over 4.2 lakh tons of additional production. But since it is a fact that the method was on the whole adopted by progressive agriculturists, we are quite safe in assuming that the average yield per acre has at last been doubled. If we consider that nearly 3 million other acreage was brought under the Japanese method partially and allow for it an extra yield of only half a ton, we would add another 15 lakh tons to the additional production. I, therefore, feel safe in claiming that as a result of this campaign the additional production of rice during 1953-54 attributable to the propagation of the Japanese method should be in the neighbourhood of 2 million tons.

16. (a) I wish to analyse sooner or later the better food production in the country and the extent to which various factors are responsible for it. For the time being it may be noted that the total production since 1949-50 upto the last year of rice in India was as follows:—

Year.	Production (in million tons)
1940-50	23.2
1950-51	20.2
1951-52	21.0
1952-53	22.5
1953-54	27.1

That is to say, as compared with 1950-51, there was better production of nearly 7 million tons. As compared with even 1951-52, the additional production was 6.1 million tons, and as compared with 1952-53, it was 4.6 million tons more. It should be realized that our unusually satisfactory food position is due essentially to better production of rice, since an addition of 3.3 per cent more land has produced 20.4 per cent more rice as compared with the previous year, *e.g.*, 1952-53. The previous average of 643 lbs. per acre had undoubtedly improved in 1952-53, but it has now gone up to 791 lbs.

(b) I am sure you will be interested to read the work done in connection with the Japanese method of rice cultivation in the Thana District (Bombay State), where it actually originated. This was supplied to me by Shri Dhamankar, Vice-President, District Development Board, Thana (Appendix II).

17. The variation in prices prevailing in various States in India, and even in the same State, has always caused me considerable concern. There may have been some justification for this during times of scarcity and controls, but the situation does not seem to have been altered very much even today. I wonder if this is a perpetual phenomena. While studying the wholesale prices per maund of food-grains prevailing in the different centres during the week ended 31st July, 1954, I found the following:—

The prices of rice varied between Rs. 10 in Tripura to Rs. 30 in Bhilwara in Rajasthan; and Rs. 31 in Mehsana in Bombay State. Rice was selling at Rs. 30 at Nasik, the lowest in the State of Bombay being Rs. 15 in Panvel in Kolaba District. In Madhya Pradesh, the price varied between Rs. 11 in Jagdalpur in Sarguja district and Rs. 20 at Daryapur in Amravati district. It is true that a major portion of the difference in prices of rice may probably be explained on the ground of difference in quality, but they cannot obviously account for the whole wide range of variations.

18. In the case of jowar, variation was still greater, the lowest being Rs. 4-8-0 at Najafgarh (Delhi State), and the highest Rs. 15-3-0 in Gooty in Anantpur district in Andhra. In Rajasthan itself, the variation in jowar prices was from Rs. 5 to Rs. 8-8-0; in Mysore, the prices varied between Rs. 8-14-0 and Rs. 13, while in Madhya Pradesh, they varied from Rs. 6 to Rs. 10; in Bombay again the variation was from Rs. 7 to Rs. 13-8-0, while in Andhra it was from Rs. 9-4-0 to Rs. 15-3-0.

19. The variation in the prices of bajra was Rs. 6-8-0 to Rs. 13-8-0, both the minimum and maximum occurring in the State of Madras. Bajra was quoted at Udamalpet at Rs. 6-8-0 and at Gobichettipalayam at Rs. 13-8-0. In Bombay, the prices varied between Rs. 9 in Broach and Amreli and Rs. 13-8-0 in Junnar (Poona). In Andhra they varied from Rs. 8 to Rs. 13.

20. The prices of maize varied between Rs. 6 in Mandasaur (Madhya Bharat) to Rs. 16 in Darbhanga (Bihar). The largest variation was in Bihar from Rs. 9 in Purnea to Rs. 16 in Darbhanga and Rs. 12-8-0 in Samastipur (North Bihar). In Madhya Pradesh, the variation was between Rs. 7-8-0 in Chhindwara and Rs. 10 in Nagpur.

21. The quotations for ragi varied between Rs. 8 to Rs. 14-4-0 at Visakhapatnam in Andhra and Tiruppur (Coimbatore district). In Madras State, ragi was sold at Rs. 8 and in the same district of Coimbatore at Gobichettipalayam

it was sold at Rs. 14-4-0. In Mysore itself, the prices varied between Rs. 9-10-0 at Mysore and Rs. 12-12-0 at Chikballapur (Bangalore). The highest price in Andhra was Rs. 12-2-0 at Hindupur (Anantpur district).

22. Wheat prices varied between Rs. 10-8-0 to Rs. 21-10-0. At the former rate, wheat was available at Forbesganj in Purnea district in Bihar but at Hospet (Bellary) in Mysore State it was sold at Rs. 21-10-0, while in Kurnool (Andhra) it was sold at Rs. 21. The lowest price at which wheat was available in Madhya Pradesh was Rs. 11-8-0 in Multai in Betul district, and the highest was Rs. 21 in Basim (Akola) of the same State. The variation was probably not so unreasonable in Amritsar to Rs. 12-13-0 in Ludhiana. But in Mysore, they varied between Rs. 16 to Rs. 21-10-0; in Rajasthan from Rs. 11 to Rs. 16; in Himachal Pradesh from Rs. 12 to Rs. 16-9-0.

23. The prices of barley varied between Rs. 6-12-0 to Rs. 11-4-0 in Himachal Pradesh, whereas the leader of the Septa Farm in Uttar Pradesh told me that as he had no storage accommodation, he had to sell his barley at Rs. 2-12-0 per maund.

24. Prices of gram varied between Rs. 7-8-0 in Damoh (Sagar) in Madhya Pradesh; Rs. 16 in Malvan in Kolaba district (Bombay); Rs. 19 in Konta, Bastar district (Madhya Pradesh) and Rs. 25 in Jagatsingpur, Cuttack (Orissa). In Himachal Pradesh, the prices varied between Rs. 9-4-0 to Rs. 16. In Madhya Pradesh they varied from Rs. 7-8-0 in Damoh to Rs. 12-8-0 in Jabalpur, although they are not very far from each other while in Kanker in the same State, gram was selling at Rs. 16.

25. These variations may also be due to availability or otherwise of transport. A single and uniform price in the whole country is by no means practicable. The prices in producing areas are bound to be lower than those in the consuming areas of the same State. The actual price quoted also depends on the means of transport and communication, marketing and other incidental charges etc. Even after allowing for these, I feel convinced there is a good deal of element of profiteering and exploration. Co-operative sale and purchase is probably the only remedy, but one does not know how long it would take to remedy the situation by some means or the other.

26. Before the commencement of the Five Year Plan there were about 2,500 tubewells in the country, mostly in U.P., Punjab and Bihar. A majority of these tubewells were

in Western U.P. In the First Five Year Plan provision was made for the construction of the following number of tubewells in the Indo-Gangetic alluvium:—

Name of state	No. of tubewells.	Financial provision (in lakh rupees)
U.P.	2,390	979
Bihar	1,026	580
Punjab	281	150
PEPSU	..	(Perhaps included in the ambitious scheme of land reclamation.)
	<hr/> 3,697	<hr/> Rs. 1,709 lakhs. <hr/>

27. The first large scale programme of State-owned tubewells was taken up under the food self-sufficiency drive. Contracts for 965 tubewells in the States of U.P., Punjab and Bihar were signed by the State Governments with a British firm called Messrs. Associated Tubewells in December, 1950. The distribution of tubewells was—

U.P.	440
Punjab	225
Bihar	300
	<hr/> 965 <hr/>

The work on this project started some time in August 1951, and was over in June 1954. The total loan given to the State Governments by the Government of India to meet the expenditure on the construction and electrification of these tubewells was Rs. 388.01 lakhs. The breakdown between the various States was:

U. P.	Rs. 200 lakhs.
Punjab	„ 125 „
Bihar	„ 63.01 „
Total	<hr/> Rs. 388.01 lakhs. <hr/>

28. Another large project of tubewell construction, the largest ever undertaken in the world, was taken up under the Indo-American Technical Assistance Programme. This project provided for the construction of 2,000 tubewells in the States of Punjab, PEPSU, U.P. and Bihar within a period of about 2½ years. Operational Agreement No. 6 was

signed in May 1952. The breakdown of these 2,000 tube-wells was:

Name of State	No. of tubewells	Government of India's loan for the programme (in lakh rupees.)
U.P.	995	741.275
Bihar	350	260.75
Punjab	355	211.225
PEPSU	300	178.50
Total	2,000	Rs. 1391.75 lakhs

1505 wells out of these (700 in U.P., 255 in Punjab, 300 in Pepsu and 250 in Bihar) were to be constructed through the contractors and the balance 495 through the State departmental organisations. Specifications for these contract wells and materials for departmental wells were drawn up at a conference of the State Chief Engineers in May 1952. Tenders were invited in July/August 1952 and contracts were signed by the State Governments concerned between November 1952 and March 1953. Work on all the projects started in August/September, 1953, and 1203 tubewells out of these 2,000 have been drilled upto 31st August, 1954. The breakdown of these drilled wells is:—

Name of State	Wells Programmed Completed		Expected date of the completion of the entire programme
U. P.	995	489	December 1955
Bihar	350	263	March 1955
Punjab	355	174	March 1955
PEPSU	300	282	December 1954

The entire programme for 2,000 tubewells according to the Project Agreement should be completed by the 31st December, 1955. There is every indication that the tubewells proper will be completed much before this date. The electrification of these tubewells is also going on simultaneously, but there will be some time-lag between the completion of wells and the supply of power to them. In any case, it would be safe to assume that all these tubewells will receive power before the scheduled date of completion, i.e., 31st December, 1955. The total expenditure on this project including the setting up of diesel and thermal generating stations is Rs. 142.2 crores divided into dollars 15.3 millions and Rs. 6.95 crores.

29. The next project is for the construction of 650 tube-wells (485 through a contractor and 163 departmentally) under the 1953 T.C.M. Tubewell Programme. The supplementary Project Agreement in this respect was signed in April 1953. The tenders for the contractors' wells were issued on the 26th June 1953, opened on 1st October 1953, and the agreements were signed in January 1954. All the preliminary arrangements including import of drilling equipment and materials have been completed and work will start in the first week of October 1954. These wells will also be completed before 31st January 1956. So far, the U.P. Government have drilled 74 wells out of their departmental programme of 130 wells under this project. The Bihar Government is constructing the balance of 35 wells departmentally.

30. In addition to these large scale programmes under the T.C.M., there are also small programme of tubewell construction going on under the G.M.F. loans, e.g., U.P., has been sanctioned G.M.F. loans for the construction of 130 wells during 1954-55. Taking into account all these tubewell programmes, the number of tubewells expected to be completed by January 1956 is 4,856 in the following manner:—

Punjab	786
PEPSU	460
U.P.	2,925
Bihar	685
	<hr/>
	4,856

31. The Ministry has also proposed a further programme of 750 tubewells under the T.C.M. programme for 1954-55 which has been approved by the Planning Commission, but funds have still to be allotted for it. If this programme is sanctioned in the near future, it may be possible to construct at least half the number of tubewells from this project before the end of the current Plan period, i.e., 31st March 1956. In that case, the number of wells completed under the First Five year Plan might be around 5,200, i.e., roughly 50 per cent. more than what was originally provided in the Plan.

32. There is also a Project for 350 exploratory tubewells to be constructed in 16 States. The idea is to find out the suitability of hitherto unexplored regions for construction of production tubewells and then to base future programmes of production tubewells on the basis of data obtained

in the exploratory borings. Such of the tubewells in the exploratory programme which yield adequate quantities of ground-water at economic depths will also be developed as production tubewells and the conservative estimate of the Geological Survey of India, who have carried out preliminary surface investigations of these areas, is that not less than 50 per cent. of these wells will be successful. The work on this project is proposed to be done departmentally by the Government of India through its own organisation with the assistance of a foreign firm of Consulting Engineers. Some of the drilling equipment and materials have arrived, and work is expected to commence in the Khandesh District of Bombay State and Akola District of Madhya Pradesh from November/December 1954 onwards. The final date for the completion of this programme is 30th June, 1957.

33. Some two weeks back I enquired whether there was any comprehensive and authoritative book on 'Fruits and Vegetables in India'. The information I could gather on this point was that little work on fruits in India has so far been done, and to our knowledge there is no work on vegetables in India. A copy of a monograph on classification and nomenclature of South Indian mangoes by P. C. Naik and S. R. Ganguly was found in the Indian Council of Agricultural Research Library. This is a volume of nearly 300 pages and was published in 1950. This was an outcome of a scheme which lasted for eight years. The scheme was sanctioned in 1937. To this, of course, must be added a splendid volume produced by the Hyderabad Government on mangoes recently. The Madras publication is fairly comprehensive and contains very good drawings but there are photographs, much less any coloured ones. It has also been stated that a monograph on "Citrus Varieties in Assam" is being prepared under a scheme under the I.C.A.R. It is in the press and is expected to be out soon. There may, of course, be some more general books on fruits and vegetables, but I think it would be agreed that the matter requires greater attention. I would be glad to know from you if there are any publications on these points, and, if possible, to send me copies also.

34. I quote below two paragraphs from the preface written by Shri Sundaram, Director of Agriculture, Madras, to the Monograph on South Indian mangoes:—

"The basis of all work in plant improvement is an understanding of the peculiarities and performances of the plant that one is called upon to deal

with. The scientist can only gauge the improvements effected, if he has the knowledge of what he started with. Work with unknown material is purposeless and wasteful. The science of classification and nomenclature, therefore, has been rightly acclaimed as providing the door to an orderly, systematic and standardized knowledge and for planned progress. Taxonomy has been the first step in all botanical research and Horticultural Taxonomy plays a similar role in the concerned field. The practical value of classified fruit wealth under a codified nomenclature is of no less importance to the practical fruit producer than to the scientist. Far too much loss has occurred in the past by haphazard plant introductions and by raising plantations with fruits, the knowledge of which was at best restricted to nurseryman's catalogue. Wrong plants in perennials cause far greater loss to the cultivator than wrong seeds of annual crops, since the evils of the planting of the former persists for very long periods. That may extend to a generation or more. "It is no satisfaction to be told that though India has grown mangoes from time immemorial, there is no agreed list yet of the choicest varieties of the country. Varieties frequently spring up in Nature; some of these attain local importance for a while; and in due course fade away from public memory to give place to new finds and fads. Thus, our variety situation is shifting, getting very localized and becoming so chaotic that it only serves to block progress. Visitors from the South often are confronted in North India markets with mango varieties that are familiar to them, but that pass under different or strange names. So long as we continue to be in the dark about our own mango wealth, and so long as we are not in a position to guarantee that the varietal names in vogue in one part of the country are identical to those in use for the same varieties elsewhere, the art or science of mango culture is bound to be at the mercy of the whims of individuals. A properly evolved system of classification and code of nomenclature are essential for increasing our fruits production efficiency and for securing enhanced and standardized quality of the produce, without which the future of our mango industry can never be upgraded."

35. This is just to strengthen my proposal for better attention and to impress upon all concerned the importance of the work of this nature from not only the point of view of popularization and an improvement of varieties but so as to form the basis of any scientific progress in their production.

36. (i) When I saw a statement by Raja Surandra Singh, Development Minister, PEPSU, to the following effect, I asked the Director of Agriculture, to supply me the basis of the statement:—

- (1) that the PEPSU State tops the entire country in the average yield of American cotton, and
- (2) that this State has already crossed the first Five Year Plan target figure of 2.5 lac bales of cotton two years ahead of the time.

(ii) The Director of Agriculture has supplied me the figures, which are taken from the Bulletin No. 5, Volume VIII, pages 366 and 367 of the "Agricultural Situation in India" of my Ministry. These figures show that in 1952-53, final estimates of area under American cotton in PEPSU was 39,000 acres, and production 27,000 bales. The production per acre, therefore, comes to .82 bales (roughly 12 maunds of *kapas* per acre). In the Punjab, on the other hand, the area for the same year under American cotton was 2.66 lakh acres, and the production 1.63 lakh bales, thus giving an average yield of .61 bale per acre (about 9 maunds of *kapas* per acre). The yields in other States are comparatively very low. For example, in Madras, the yield of Cambodia comes to .37 bale to an acre, and that of Hyderabad American to .11 bale to an acre.

(iii) According to the estimates of area and production for the year 1952-53, as worked out by the Agriculture Department, the area under American cotton (mostly 320-F LSS and 216-F) comes to 1.5 lakh acres, and production 1.2 lakh bales. The average yield, according to these figures, also comes to about 12 maunds of *kapas* per acre.

(iv) As regards point (ii) the target for PEPSU was 2.55 lakh bales. The trade figures production in 1953-54 for this State as estimated by Messrs. Ramjidas Girdharilal, Bhatinda, and Messrs. Volkart Bros. are: 2.55 lakh bales, and 2.5 lakh bales, respectively. According to the departmental estimates based on the returns of cotton ginning and pressing factories the production comes to 2.60 lakh bales. These figures thus show that this State has already crossed the production target of cotton two years ahead of the scheduled time.

37. A news item to the effect that a three day meeting of the Forest Officers in the State of Uttar Pradesh was held from September 8 to 10, 1954, also attracted my attention, and I asked the Chief Conservator of Forests, U.P., Shri R. N. Singh, to send me the minutes of this meeting. The meeting discussed important question relating to plantation of valuable species, for instance, teak, mulberry, tun, sandal wood etc. Some of the decisions of this meeting will probably be of some use to my colleagues in charge of Forests, and I am, therefore, attaching a copy of the proceedings for your information: (Appendix III). Even if the detailed proceedings do not contain anything marvellous or new, which is not known to competent Foresters in other States, I have no doubt, the very idea of a Conference like this and laying down definite targets is highly useful. It is with this end in view that I have referred to this matter.

38. I attach for your information a note received from the F.A.O. on million dollar budget for 1955 for locust campaign (Appendix IV). I am sure this will interest you.

39. On 19th September or the very next day after the stitches put on my operated eye were removed, I addressed a meeting of the Executive of the All-India Co-operative Union. I am enclosing herewith the text of that speech (Appendix V). It has received fairly extensive publicity, and for this reason I do not propose to comment on it except to say that while stating the facts as they emerged from the report of the Reserve Bank of India, I am not oblivious of the progress we have achieved in spite of innumerable handicaps and difficulties. I am glad that such a misunderstanding has not arisen and most co-operators have followed the spirit in which I spoke. I have, however, received an interesting letter from one Shri Manoharlal Rajora, dated the 27th September, 1954. I cannot resist the temptation of stating what he has to say:

"Your recent review of the slow progress of the Co-operative Movement while addressing the Executive Committee of the All-India Co-operative Union brings but a very poor comfort to the enthusiasts. As a true admirer of Co-operation, I fully share your view and must be candid in telling you that the co-operative ideas are still poles as under from co-operative principles and their application. The present idea of Co-operation is mainly encircled by the consideration of Money, gain and profits and NO MORAL aspect."

During the course of the last few years it has been marked that the inadequate and uneven progress

made by the Co-operative Movement in the country is largely due, among other things to the *laissez-faire* policy followed by the Government and to the lack of general education among those whom it seeks to serve, with the result that it has totally failed to provide a reasonable standard of living to the people. Further, due to our own thoughtless attitude there has been a lack of a comprehensive study of their applicability to the facts of our life and of how they are to be fashioned to meet our needs. The TRUE position as it stands today is, that neither there is any spirit of Co-operation among the people nor has the Government created any ways and means as to produce such a SPIRIT in them as yet.

"We often curse Fate when there is a pining for wealth—but where there is Co-operation, no Wealth can accomplish what Co-operation can. With the change of times, the Co-operation for multifarious purposes has received a sanction and attention and must awaken for the creation of Co-operation of a Higher Ideal. Living long in a state of oblivion has brought a GREAT HARM to the country, and if even now there is NO STIMULUS to form into a TRUE CO-OPERATION, how can there be any hope for any individual to edify himself and to be of help to the Government and the country, while yet there remains a feeling of HELPLESSNESS staggering in our minds.

"What the country needs urgently are not more and more better politicians but more and more real co-operators—sincere preachers and true Evangelists who understand the Divine purpose and how to bring this message and its Might to the suffering humanity. If you will provide the writer an interview, the economic, social and moral problems and the unemployment question could be solved."

Of course, I could not read the speech myself and it had, therefore, to be read for me.

40. Copies of letters from State Ministers are also attached herewith for your information (Appendix VI).

Yours sincerely,

To

All State Ministers for
Agriculture, Co-operation etc.

P. S. DESHMUKH

APPENDIX I

EXTRACTS FROM THE MINUTES OF THE 6TH MEETING OF THE F.A.O. NATIONAL LIAISON COMMITTEE HELD ON 30-8-1954. PRESENT

1. Prof. N. G. Ranga, M.P.
2. Prof. Ram Saran, M.P.
3. Shri Tekur Subramanyam, M.P.
4. Shri Chhoitram Partabrai Gidwani, M.P.
5. Shri Ausotosh Bhattacharya.
6. Shri Ratilal Gandhi.
7. Shri Karathiruman.
8. Shri V. V. Patil.
9. Shri G. L. Narayana.
10. Shri J. V. A. Nehemiah.
11. Shri K. R. Damle.
12. Shri M. R. Bhide.
13. Shri I. P. Mathur.
14. Dr. M. B. Ghatge.
15. Dr. V. G. Panse.
16. Dr. R. N. Poduval.
17. Shri J. S. Sarma.
18. Shri Ram Saran.
19. Shri D. D. Gupta (N. R. & S.R.).
20. Shri V. A. Mehta (C. & I.).

Shri K. R. Damle in the beginning read out a message from Dr. P. S. Deshmukh, Minister for Agriculture (who is also the Chairman of the F.A.O. National Liaison Committee), who had expressed his inability to attend the meeting because of sudden illness. Dr. Deshmukh wished the meeting success.

Prof. N. G. Ranga was then voted to the chair.

The agenda circulated to the members of the Committee was then taken up.

It had been recommended that the Statistical Adviser to the Indian Council of Agricultural Research should circulate a note to the members of the Committee giving the details of the cost of cultivation scheme at Akola. Accordingly note on the scheme had been circulated to the members of the Committee. At the meeting Dr. Panse explained the details of the scheme in question. He stated that a pilot

enquiry was carried out in Akola district of Madhya Pradesh in 1952-53 for the estimation of physical quantities, such as human and bullock labour and materials like seed and manure required for the production of cotton and rotation crops, jowar and groundnut together with the money equivalents of these quantities. The six tehsils of the district were treated as strata and five villages were selected randomly from each. In each selected village, two types of sample units, viz., an operational holding and an individual field growing a particular crop were selected for observation in order to compare their suitability and efficiency. Two holdings and fields for each crop were selected randomly in the village. The field work in each village was entrusted to an experienced fieldman or Kamdar on a whole time basis for a period of 13 months. A set of *pro formas* was prescribed for collecting the necessary information. The various physical quantities and their money values were collected and were given in considerable detail in the report. The results showed that the cost of production per acre was Rs. 51.63 for cotton, Rs. 50.11 for jowar and Rs. 72.91 for groundnut.

The Committee approved the following four suggestions made by Dr. Panse in his note circulated to the members:—

- (i) Such enquiries should be planned for agricultural tracts comprising of groups of districts rather than for individual districts on account of the heavy survey cost involved.
- (ii) The holding is perhaps a more preferable observational unit than a field and a sample of 30 villages with the four holdings per village, which can be managed by one locally stationed investigator is likely to give estimate of costs with reasonable precision with a standard error of about 5 per cent.
- (iii) The number of holdings to be observed per village may be altered depending upon their size and the number of crops under study.
- (iv) In order to take into account seasonal fluctuation, the enquiry should be repeated after three years in a tract with a fresh sample of holdings and villages in each year in order to provide representative estimates for the tract.

It was suggested that in such surveys additional information should also be collected on the following items:—

- (a) Cost of production in respect of land which is not owned by a cultivator.

- (b) Cost of distribution of the agricultural produce.
- (c) The total quantity produced and the value of the same.

It was recommended that the printed copies of the report should be distributed to the members as soon as available.

(vii) *Recommendations*.—It has been recommended that report of the FAO Conference held in November-December, 1953 and the report of the Indian Delegation thereon should be discussed. Various resolutions passed at the above Conference had been considered earlier at a Meeting of the Sub-committee of the FAO National Liaison Committee held on 27th August, 1954.

The main observations and recommendations made by the Sub-committee were approved except for the following modifications:—

Resolution No. 1.—It was suggested that in addition to the 8 points recommended by the Sub-Committee for special study under future marketing surveys, a study should also be made of the measures that could be taken to reduce the cost of transport by road.

Resolution No. 2.—It was stated that India was surplus not only in tobacco but also in a few other commodities like chillies, onions and groundnuts. With regard to tobacco, it was felt that it was not in the interest of the nation to absorb the surplus by expansion of cigarette manufacturing concerns. A suggestion was made that the basic solution of the problem lay in diversion of acreage under this crop to food crops. As regards onions and groundnuts, it was recommended that study should be made for exploring the possibility of expanding their exports.

Resolution No. 4.—The Sub-committee had proposed that the target for consumption of cereals should be raised from 14 oz. per adult per day in the first Five Year Plan to 16 oz. in the Second Five Year Plan. The representative of the Health Ministry, however, proposed that the aim under the Second Five Year Plan should be to increase the consumption of protective food and the aim at a balanced diet rather than to increase consumption of cereals. After discussion it was, however, felt that it might take a long time to produce a sufficient quantity of protective foods required for the entire population. It was, therefore, recommended that till such time as balanced diet is available, we may aim at consumption of cereals to the extent of 16 oz., per adult per day.

Resolution No. 8.—The recommendation made by the Sub-committee was approved. It was suggested that to begin with stabilisation of prices may be aimed at prices paid for Government procurement.

Resolution No. 9.—The recommendation of the Sub-committee on disposal of agricultural surplus was approved except that it was suggested that the products in which a number of countries are in surplus should be supplied by the exporting countries to the Governments of under developed countries and by the latter to vulnerable groups, either free or at a very low prices, taking due care that it does not upset ordinary channels of trade.

Resolution No. 10.—It was stated that only in West Bengal fishery enterprise was undertaken as State business. It was resolved that the reports in respect of this enterprise in West Bengal as well as of fisheries schemes in other States should be circulated to the members of the Committee.

Resolution No. 12.—The Committee took note of the floods in certain areas and drought in other areas and hoped that the Government was taking all measures to study the situation arising out of these calamities. It was resolved that a report giving the effects of these calamities should be submitted at the next meeting of the Committee.

Resolution No. 15.—The recommendation made by the Sub-committee was accepted. It was further recommended that the Economic Adviser's office in the Commerce and Industry Ministry should be moved to change the base year of their Index Number of prices from 1939 to another suitable year.

Resolution No. 19.—The recommendation made by the Sub-committee was approved. It was further resolved that the progress of the steps taken in various States should be made available to the Members of the Committee.

Resolution Nos. 21 and 26.—It was recommended that the Government of India should plan the production of protective foods because such foods received from outside were not sufficient for the needs of the country.

Resolution No. 24.—It was suggested that a statement on the implementation of the various land reform measures should be submitted to the Committee.

Resolution No. 25.—Deputy Inspector General of Forests explained the details of the activities carried out by the

Desert Afforestation Research Station, Jodhpur. These activities included experiments on soil samples, seeds, etc. opening of nurseries, storing of seed, creation of cases, selection of sites for shelter, selection of blocks for afforestation, creation of a five mile wide belt etc. The Deputy I.G.F. pointed out that the bottlenecks in implementing the scheme were in regard to (a) availability of staff and (b) acquisition of land on the western border by the Rajasthan Government. It was recommended that a study should also be made of areas other than Rajasthan Deserts, particularly in Hyderabad, Madhya Bharat, Andhra, Maharashtra, etc. where desert conditions are extending.

Resolution No. 30.—The recommendation made by the Sub-Committee was approved. It was further recommended that as far as possible the members of the Committee interested in various subjects should be associated with the meetings of the FAO held not only in India but also in Ceylon, Burma and Pakistan.

4. The next item on the agenda related to (a) the Fourth Session of the International Rice Commission and its working Parties on Rice Breedings and Fertilisers to be held in October, 1954, at Tokyo and (b) FAO Technical Meeting on Poultry Production in Asia and the Far East to be held at Lucknow in January 1955. It was seconded that the Government should include in the India's Delegation to the Technical Committee on Poultry Production, such members of the FAO National Liaison Committee, who were interested in the subject. With regard to the International Rice Commission and its Working Parties, the members desired that one or two of them should be represented in the Delegation. It was, however, pointed out that the next Session of the Rice Commission would mainly be concerned with technical matters and as such only technical experts on the subject would be required.

5. A suggestion was made that the feasibility of the banning export of bonemeal should be examined.

6. It was recommended that the Sub-Committee should continue to function as a Standing Committee and that the next meeting of the Sub-Committee should be held two or three days earlier than the meeting of the main Committee, which if possible, should be held at Dehra Dun to coincide with the Forestry Conference.

7. The meeting came to close after expressing the hope that Minister for Agriculture would recover speedily and would be present at the next meeting.

APPENDIX II

SHORT NOTE ON THE WORK DONE IN CONNECTION WITH THE JAPANESE METHOD OF RICE CULTIVATION IN THANA BY SHRI DHAMANKAR, VICE PRESIDENT, DISTRICT DEVELOPMENT BOARD, THANA.

The Japanese Method was first adopted in Thana District by Agricultural School, Kosbad and Kora Kendra, Shimpavali in 1950 and the crop was demonstrated to cultivators round about. During the year 1951 the paddy crop was planted on about 4 acres of land by the Japanese Method. The Cultivators were also encouraged to stir the soil in their fields which gave encouraging results in getting more yield. Shri H. G. Patil, the Superintendent, Agricultural School Kosbad who had returned from Japan also gave training in this new method to the Agricultural School Assistants in the District. In the year 1952 an area of about 150 acres was brought under paddy cultivation by Japanese Method. This gave encouraging results.

The Scheme for Japanese Method of Paddy Cultivation was first introduced by Government in Thana District during the year 1953-54. During the year 1953-54 the Department of Agriculture decided to adopt the Japanese Method on large scale in the District.

432 demonstrations were held by the District staff for popularising Japanese Method by the use of Flannel graop, philip book and actual field demonstrations. A fortnight was also observed from 15th March to 31st March, 1953 for launching a campaign and number of demonstrations were also held. About 10000 pamphlets were got printed and distributed to the cultivators. 17 training classes (Shibirs) were held in the district for training the cultivators in Japanese Method. A film of life of Rice plant and the Japanese Method of Paddy cultivation was shown to the cultivators at the time of Shibirs. Actual field demonstrations were held at the time of Agricultural and Cattle Show at Palghar and also at the time of the Agricultural and Industrial Show held at Bombay in April. Training classes

were held at Karjat and Kosbad for training the staff and the cultivators and social workers. Special training classes were also held for Adivasis. 520 demonstration plots were arranged on the cultivators fields. As a result of all these during the kharif season of 1953 an area of about 946 acres was brought under Japanese Method of paddy cultivation. A sum of Rs. 30,679-15-0 was advanced in the District to cultivators adopting the Japanese Method.

It was a proud day for District Development Board, Thana when on 10-11-53 the President of India visited one of the model paddy farms at Pawai with a view to see the crops cultivated by the Japanese Method. He was greatly impressed by the efforts that are being made in this district for popularising Japanese Method of Paddy Cultivation and the results so far achieved.

During the year 1954 more intensive propaganda was made.

- (1) A fortnight from 24th May to 7th June was observed.
- (2) 732 meetings were held.
- (3) 10000 leaflets were got printed and distributed to the cultivators.
- (4) 20 Shibirs were held.
- (5) 4 special classes for Adivasis were held in Adivasi area.
- (6) 4 small exhibitions and one District Agricultural and cattle show were held and Japanese Method of Paddy cultivation was demonstrated.
- (7) Film on Japanese Method of Paddy Cultivation was shown to the cultivators through Publicity Van.
- (8) Government also sanctioned tagai for this scheme. So far a sum of about Rs. 75,000 has been advanced under the scheme for Intensive Cultivation of paddy by Japanese Method to cultivators adopting Japanese Method.

800 demonstration plots were laid. As a result of all these during the kharif season of 1954 an area of about 25000 acres has been brought under cultivation by Japanese Method.

The target fixed and area brought under cultivation during these years is as under:—

	No. of Taluka	1951		1952		1953		1954	
		Target fixed	Target achieved	Target fixed	Target achieved	Target fixed	Target achieved	Target fixed	Target achieved
1.	Thana	..	..	..	0—15	..	34—0	1000	1000
2.	Borivali	..	1—10	..	6—0	520 demonstration plots of 10 gunthas each	41—20	750	750
3.	Andheri	..	..	..	22—5	..	145—10	1250	1250
4.	Palghar	..	0—2	..	28—0	..	249—26	3500	3500
5.	Bassein	..	1—13	..	3—0	..	56—5	1500	1500
6.	Bhiwandi	..	..	..	17—0	..	83—22	2000	2000
7.	Vada	..	..	..	..	..	19—12	1000	1000
8.	Murbad	..	0—2	..	1—20	..	15—0	2000	2000
9.	Shahapur	..	0—14	..	7—20	..	17—21	2000	2000
10.	Kalyan	..	0—9	..	1—0	..	11—13½	800	800
11.	Project	..	..	..	..	..	64—9	1200	1200
1.	Dahanu	..	..	..	35—0	..	164—39	4000	4000
2.	Umbergaon	..	..	..	28—0	..	42—16	3000	3000
3.	Mokhada	..	..	..	1—20	..	11—23	300	300
4.	Jawhar	..	..	..	2—20	..	8—5	700	700
		..	4—10	..	153—20	..	946—22½	25000	25000

Increase in yield due to the Japanese Method can be taken as under
 @ 10 Mds. per acre.

Year	Additional yield obtained by J.M.
1951	42½ Mds.
1952	1532 „
1953	9462 „
1954	2,50000 „

This year the rains are satisfactory and sufficient for the crop and the condition of the paddy crop is so far good.

APPENDIX III

DECISIONS AND RECOMMENDATIONS OF THE PLANTATION CONFERENCE. SEPTEMBER 8, 9, AND 10, 1954.

Item No. 1.—Special plantation of sal.

The Conference recognised three types of problem areas in sal forests:

- (a) Moist areas where previous regeneration fellings have failed to produce natural reproduction.
- (b) Drought-affected areas where drought casualties are occurring to a very large extent, *e.g.*, in Bahraich, North-Kheri and Gorakhpur divisions.
- (c) Moribund sal areas where natural regeneration is absent since a very long time and all attempts at obtaining it have failed.

The Conference decided that:

Type (a) areas should continue to be included in the *quartier bleu* and should be regenerated by artificial means, under a shelterwood where necessary, and an annual coupe should be laid down. This fact should be borne in mind while prescribing the yield from the rest of the *quartier bleu* in order to prevent over-exploitation.

The Conference recognized two kinds of type (b) areas; one, where drought damage is almost continuous and the other where it is periodic. The Conference felt that although sal has been very badly affected in certain localities, it would not be justifiable to eliminate sal altogether in attempts at regenerating such areas. These areas should be artificially regenerated by mixed crops of which sal should not form less than 25 per cent. in any case, but on the other hand there should be no attempt to raise a pure plantation of sal. This should be kept in view during thinnings. The mixture should consist of the usual associates of sal but not more than six species should be used in any one plantation. In badly drought-affected localities, the components of the mixture should also consist of short rotation crops like babul. Soil and water conservation methods, *e.g.*, contour-trenching, bunding, hoeing and mulching should also be tried in such areas.

In type (c) areas a normal annual coupe for artificial regeneration should be laid down in which sal should be raised in mixture with miscellaneous species of industrial importance, under a shelterwood of sal and miscellaneous species of 0.25 to 0.5 density, as recommended by the Sal Symposium. In the rest of the area, soil and water conservation methods, combined with soil working and seed broadcasting, should be tried in order to induce natural regeneration. The conference also recommended that experiments to study the effect of trace elements and chemical fertilisers on natural regeneration should be conducted in a few typical localities.

Item No. 2.—Special plantation of teak.

Teak is a multipurpose and very valuable timber. It was recognised by the Conference that very good quality teak could be grown in suitable localities in U.P. and that even low-quality teak grown in miscellaneous forest is superior to the other species occurring in such areas. It was, therefore, decided that teak should be introduced in U.P. in the following two ways—

- (a) by gap-planting in existing tree forest,
- (b) as a mixture in plantations.

Teak should be raised by stump planting. In plantations it may be grown either in intimate mixture with other species or in pure strips alternating with strips of miscellaneous species. In pure strips and also in gap-planting, the stumps should be planted at $8\frac{1}{2}' \times 8\frac{1}{2}'$ spacement.

The locality of origin of teak seed should be taken into consideration and for raising plantations in dry and moist areas, teak seed should be obtained from dry and moist localities respectively.

Because in pure plantations of teak the soil erodes and deteriorates rapidly, mixed plantations were indicated and the following species were suggested as the other components of the mixture.

(i) Moist localities.

top canopy Cedrela toona (tun), Gmelina arborea (gamhar), Dalbergia latifolia (rosewood), Mangifera indica (mango), Syzygium cumini (Jamun), Terminalia tomentosa (asna), Adina cordifolia (Haldu), Dalbergia sissoo (sisso).

under storey *Ougenia dalbergioides* (sandan), *Syzygium cumini* (jamun), *Mallotus philippensis* (rohini).

(ii) Dry localities.

Pterocarpus marsupium (bijasal), *Dalbergia latifolia* (rosewood), *Lagerstroemia parviflora* (asidha) *Terminalia tomentosa* (asna), *Maduca indica* (mahua), *Gmelina arborea* (ganhar), *Ougenia dalbergioides* (sandan).

In making plantations of teak, sandy and waterlogged localities and frosty chandars or blanks should be avoided. Thorough soil preparation is necessary in dry and stony soils, the minimum size of pits being 2' x 2' x 2'.

Pregermination beds should be made in order to avoid waste of seed. The beds should be about 3' wide and 9" high. Seed should be spread closely and evenly in a single layer, covered with a grass mat and wetted and dried on alternate days until seedlings appear, which should then be progressively pricked out in prepared nursery beds at 1' x 1' spacement.

The following targets, in terms of number of stumps to be planted, were fixed for the various divisions.

	No. of stumps
Eastern Circle	5,24,000
Western Circle	2,80,000

It was recommended that Divisional Forest Officers should arrange for enough seed during the coming winter in order to grow sufficient number of plants to attain these targets by June 1955 if possible.

Item No. 3.—Plantation in arid and usar areas.

Arid areas

As only experimental plantations are being raised in arid areas at present, the conference recommended the following species for trials:—

Timber species

- (1) *Salmalia malabarica* (semal).
- (2) *Gmelina arborea* (gamhar).
- (3) *Ougenia dalbergioides* (sandan).
- (4) *Dalbergia latifolia* (rosewood).

- (5) *Pterocarpus marsupium* (bijasal).
- (6) *Tectona grandis* (teak).
- (7) *Albizia* spp. (siris etc.), (lebbek and odoratis-sima).
- (8) *Lagerstroemia parviflora* (seja).
- (9) *Terminalia tomentosa* (asna).
- (10) *Gardenia latifolia* (papra).
- (11) *Mitragyna parvifolia* (kaim, phaldu).
- (12) *Dendrocalamus strictus* (bamboo).
- (13) *Terminalia arjuna* (arjun).
- (14) *Anogeissus latifolia* (dhao).
- (15) *Boswellia serrata* (salai).
- (16) *Hardwickia binata* (anjan).
- (17) *Anogeissus pendula* (Kardhai).
- (18) *Kydia calycina* (pula).
- (19) *Holoptelea integrifolia* (Kanju, Papri).
- (20) *Tecoma undulata* (rohit).
- (21) *Haplophragma adenophyllum* (Kathsagon).
- (22) *Madhuca indica* (mahua).
- (23) *Ailanthus excelsa* (arroi).
- (24) *Azadirachta indica* (neem).
- (25) *Dalbergia lanceolaria* (dhobein).

Fuel species

- (1) *Acacia arabica* (babul).
- (2) *Butea monosperma* (dhak).
- (3) *Bauhinia variegata* (Kachnar).
- (4) *Acacia senegal* (Kumta).
- (5) *Cassia siamea*.
- (6) *Pongamia pinnata* (kanji).
- (7) *Anona squamosa* (sharifa).
- (8) *Prosopis Juliflora* (mesquite).

Species of other economic value

- (1) *Emblica officinalis* (aonla).
- (2) *Terminalia chebula* (har).
- (3) *Aegle marmelos* (bel).
- (4) *Zizyphus jujuba* (ber).
- (5) *Buchanania lanzan* (chironji).

- (6) *Cordia dichotoma* (lasora).
- (7) *Diospyros tomentosa* (tendu).
- (8) *Phoenix sylvestris* (khajur).
- (9) *Schleichera oleosa* (kusum).
- (10) *Sapindus emarginatus* (ritha).
- (11) *Terminalia belerica* (bahera).
- (12) *Santalum album* (Sandal).
- (13) *Pterocarpus santalinus* (rakt-chandan).
- (14) *Feronia acidissima* (Kaith).
- (15) *Moringa oleifera* (sainjna).
- (16) *Sterculia urens* (karar).

Aesthetic species

- (1) *Cassia Fistula* (amaltas).
- (2) *Malia azedarach* (bakain).
- (3) *Wrightia tomentosa* (dudhi).
- (4) *Holarrhena antidysenterica* (kura).
- (5) *Nyctanthes arbor-tristis* (har-singar).
- (6) *Crataeva religiosa* (varuna).
- (7) *Erythrina suberosa* (dhol-dhak).
- (8) *Cassia auriculata* (avaram).
- (9) *Cochlospermum gossypium* (gabdi).
- (10) *Eucalyptus rudis*.

Usar areas

By usar only the alkaline soils are meant. It was agreed that usar soils should be classified into different degrees of alkalinity and different species should be tried in each grade. Experience shows that tree plantations should only be raised on soils with a pH value less than 8.5. The list of species suggested for trials is given below:—

Usar Areas

- (1) *Mitragyna parvifolia* (kaim, phaldu).
- (2) *Cassia fistula* (amaltas).
- (3) *Tamarindus indica* (imli).
- (4) *Haplophragma adenophyllum* (Kathsagon).
- (5) *Terminalia arjuna* (arjun).
- (6) *Salmalia melabarica* (semal).
- (7) *Madhuca indica* (mahua).
- (8) *Bauhinia variegata* (kachnar).

- (9) *Adina cordifolia* (haldu).
- (10) *Albizzia* spp. (siris).
- (11) *Dalbergia sissoo* (sisso).
- (12) *Pongamia pinnata* (kanji).
- (13) *Azadirachta indica* (neem).
- (14) *Terminalia belerica* (bahera).
- (15) *Sapindus emarginatus* (ritha).
- (16) *Syzygium Cumini* (jamun).
- (17) *Zizyphus jujuba* (ber).
- (18) *Ficus religiosa* (pipal).
- (19) *Cassia auriculate* (avaram).
- (20) *Salvadora* spp. (*Oleoides* and *persica*).
- (21) *Butea monosperma* (dhak).
- (22) *Crataeva religiosa* (varuna).
- (23) *Prosopis juliflora* (mesquite).
- (24) *Tamarix articulata* (farash).
- (25) *Melia azedarach* (bakain).
- (26) *Cordia dichotoma* (lasora).
- (27) *Acacia arabica* (babul).
- (28) *Feronia acidissima* (kaith).
- (29) *Prosopis spicigera* (chheonkar).
- (30) *Acacia leucophloea* (reonj).
- (31) *Phoenix sylvestris* (khajur).
- (32) *Streblus asper* (sihor).
- (33) *Diospyros cordifolia* and *montana*.
- (34) *Cordia rothii* (gondhi).
- (35) *Aegle marmelos* (bel).
- (36) *Diospyros tomentosa* (tendu).

As regards soils exceeding 8.5 pH it was suggested that experimental cultivation of grasses should be taken up in a few selected localities especially in the Avadh division, e.g., in areas taken up for afforestation along the Lucknow-Kanpur and Lucknow-Hardoi roads and in the Kukurail forests. Since some experiments on these lines have already been conducted in Agricultural institutions, literature pertaining to grasses and associated legumes suitable for use in areas should be obtained from the Poona Grass Research Institute, the Coimbatore grass experiment station, the Sholapur grass farm and also from the Agriculture department regarding the experience gained at the Amausi Agricultural farm.

The following indigenous species were also suggested for trials:—

Grasses

Iseilema laxum.
Iseilema antheboroides
Chloris montana.
Cenchrus ciliaris.
Dichanthium annulatum.
Bothriochloa petusa.
Dactyloctenium aegyptium.
Cynodon dactylon.
Sporobolus pallidus.

Legumes

Tephrosia purpurea.
Indigofera enneaphylla.

Item No. 4.—Afforestation of catchment areas of Gomati, Rapti and other rivers.

It was noted that a new division had already been created for the Gomati-Rapti scheme and a survey was in progress, but that it was too early to say any thing definite about techniques, species, costs etc. The conference was also of the opinion that immediate steps should be taken to stop any further deforestation in these catchment areas.

Item No. 5.—Plantations of miscellaneous species.

Miscellaneous plantations.—The Conference decided that in these plantations, preferably the following species should be raised:—

teak, semal, gumhar, tun, sissu, rosewood, baurang, stris, haldu, phaldu, arroo, am, gutel, pula, champa, khair, kanju, *Acrocarpus*.

in the following proportions:—

Matchwood species	30%
Plywood species	30%
Others	40%

It was also agreed that semal, sissu, teak and tun are the most important species for miscellaneous plantations in the moist deciduous region. The proportion of various species to be raised in mixture was left at the discretion of the territorial officers but it was suggested that not more than six species should be mixed together in any one plantation.

Mulberry.—500 acres of mulberry plantations should be raised annually, 250 acres each in the Eastern and Western Circles. It was suggested that mulberry should only be planted in alternate pure lines in the same year's miscellaneous plantation.

Walnut, ash, maple, birdcherry, willow, Morus serrata.—The Chief Conservator suggested that at least one lakh plants of walnut should be raised every year. For other species the following targets were fixed:—

	Ash	others
Kumaon circle	10,000 nos.	15,000 nos.
Tehri Garhwal circle	5,000 nos.	5,000 nos.

Areas.—It was also recommended that no hill division should do less than 250 acres of plantation annually and as far as possible the individual areas should not be less than 50 acres. The actual allotment of area per division was left to the discretion of the territorial conservators.

For plains divisions it was recommended that a plantation unit should not be less than 200 acres in area. Approximately 17,000 acres have been afforested in 1954 rains and there is scope for taking up much larger areas in future.

Use of tractors.—It was recognised that the use of departmental tractors should bring down the costs of soil preparation considerably and a tractor should be used wherever possible. It was pointed out that the minimum area commanded by a medium horse power tractor is 200 acres. It was also agreed that when acquiring a tractor due attention should be paid to proper implements and disc plough, an offset harrow, a Roan's harrow and a border disc arrangement or ridger should be arranged for. Because conditions vary from place to place, the time of ploughing was left to the discretion of the territorial staff, provided that it was done early enough to allow the soil to weather adequately.

Sowings, weedings etc.—The clods should not be broken and sowings should be completed before the monsoon. The strips or lines of seedlings should not be more than 20' apart, centre to centre. During weedings, the weeded material should be mulched along the lines of seedlings. The seedlings in strips or lines should be spaced out adequately by the end of the third weeding.

Seed storage.—In view of the fact that the seeding of many forest species is not annual but periodic, the conference suggested that one or several units of a cold storage
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plant be erected in due course for storage of seed collected in a good seed year. Initially experiments should be conducted on the retention of viability of seeds under different cold-storage conditions.

Planning and co-ordination of supplies.—The conference suggested that a central organisation should be created to deal with the supply of seed, fencing wire, mechanical equipment, implements etc. and for the pooling and dissemination of information on various aspects of plantations.

Item No. 6.—Sandalwood plantation.

It was decided that sandalwood should be grown in suitable localities on a small scale. Experimental plantations were suggested in all the divisions of the southern zone and in Haldwani, Ramnagar, Tarai and Bhabar Estates, North Kheri and South Kheri divisions in the northern zone. The Silviculturist was directed to arrange for adequate quantities of seed and to circulate a note on the artificial regeneration of sandal.

Item No. 7.—Babul plantations.

In view of the great demand for tanning material it was decided that babul should be grown to a larger extent wherever possible in suitable localities. Sandy and frosty areas should be avoided.

In addition other tan-bearing species, particularly *Cassia auriculata* (avaram), *Cassia fistula* (analtas), *Emblica officinalis* (aonla), *Terminalia belerica* (bahera) and *Anogeissus latifolia* (dhau) should be grown in the plains, especially in the arid areas and *Myrica sapida* (kaphal) should be grown in the hills.

Item No. 8.—Economy in the cost of plantations.

The conference recorded that the subject had already been discussed in detail at a Conservators conference, the minutes of which would issue in due course.

The average cost of plantation in different zones was considered. It is summarised below:—

	Cost per acre in Rs.
Eastern Circle	
Northern tracts	80 to 90
Southern tracts	60 to 75
Western circle	135 to 160

(except where porcupine proof fence is used, when the cost rise to 196 to 236 per acre).

Land Management circle 70 to 90.

APPENDIX IV

MILLION DOLLAR BUDGET FOR 1955 LOCUST CAMPAIGN

The group of experts presently meeting at the Rome headquarters of FAO today concluded that around a million and a quarter dollars worth of services and equipment would be needed to fight next year's anticipated locust plague in the Arabian Peninsula. This is the sum needed for the intensive operations called for by FAO's Director-General Dr. P. V. Cardon in welcoming the delegates to the meeting and already over a million dollars of the total has been pledged in cash, equipment or services, by twelve of the countries concerned, with assistance from FAO. Largest contributor among the nations concerned is the United Kingdom, with \$300,000, while Egypt has estimated her share as \$112,000, and the Saudi Arabian delegate considered that his country would be able to provide the equivalent of another \$100,000. In addition to the national contributions, FAO is making available already some \$169,000 which includes a reserve of poison bait left over from this season's operations, while Sir Herbert Broadley, Deputy Director-General, announced that at least another \$150,000 would be available in cash or services next year. This second FAO contribution might in fact reach a maximum of \$250,000 in which case there remained only \$92,000 to be found to close the gap between funds already promised and the agreed minimum of \$1,255,000 for next year's campaign. What delegates did was to agree that this sum can be found either by further contributions from countries which have not yet declared what they have to offer (such as Yemen), or failing that, by contributions on an agreed basis from the countries already contributing.

The funds thus subscribed are to be used purely for the highly concentrated campaign which is to be carried out in the Arabian Peninsula, and which is in fact an "insurance" operation to try and prevent locusts breaking out into all surrounding countries later in the year. If successful and experts say there is no reason why it should not be so—this campaign will greatly reduce the sums which countries have to spend within their own frontiers as a result of invasion by flying swarms of adult locusts and their subsequent breeding, as has happened in many areas this year.

The fact that governments have realized that this is in fact the only fundamental way to deal with the situation is considered as a great step forward in international control of the desert locust. At the same time, it must be appreciated that the countries concerned are still expecting to spend considerable sums in their own territories, since complete control of the plague at this stage cannot be reached in one season. Some idea of the magnitude of the sums involved was gained by delegates when they heard Mr. A. J. Galsworthy, leader of the United Kingdom delegation, state that the campaign in East Africa and the Aden Protectorate alone had now cost his government between three and a half and four million dollars.

APPENDIX V.

SPEECH BY DR. PANJABRAO S. DESHMUKH, MINISTER FOR AGRICULTURE, AT THE INAUGURATION OF THE EXECUTIVE COMMITTEE OF THE ALL-INDIA CO-OPERATIVE UNION AT ITS MEETING HELD ON 19TH SEPTEMBER, 1954.

A few days back it seemed extremely unlikely that I will be able to be physically present at this meeting of the Executive Committee of the All-India Co-operative Union. I am glad, however, that I had not to deny myself this pleasure this morning in spite of a recent operation I had to undergo. I hope you will excuse me for not reading my speech and asking someone else to read it for me. I cannot flout medical advice altogether, although I am at present here somewhat against such advice.

The reason why I was anxious to attend this meeting, was firstly, to show my deep interest in this matter, and, secondly, for the purpose of putting some ideas before you which have been agitating in my mind.

The First Five Year Plan has thrown on the co-operatives the main responsibility for under-writing the economic progress of the country, particularly in the sphere of agriculture. We are fast approaching the end of the First Five Year Plan, and we have already begun to think in terms of formulating plans for a further five year period. At this time we have to ask ourselves the question: Have the co-operatives proved themselves equal to the task they were expected to shoulder, and have they kept pace with advance made in other directions, such as, for instance, land reform, community development, local self-government and other great projects of economic and social improvement which are so rapidly transforming the life and outlook of the great mass of the people in the country. If you have not, what is it that is holding up their progress.

I find from the progress statement issued recently by the Reserve Bank of India that there were 185,650 societies of all types at the end of the co-operative year 1951-52 (figures for later years are not available). The membership of the societies stood at nearly 138 lakhs and working capital exceed Rs. 300 crores. Put that way, the Movement looks imposing enough. But the actual analysis of figures brings out

a state of affairs which does not give room for satisfaction and should, in fact, cause us considerable concern. After half a century of growth it has succeeded in covering not more than one-fifth of the population, taking one member to represent a family of five. Be it noticed that the Movement has actually lost a little ground in 1951-52, as compared with the previous year; while in 1950-51 it served 19.1 per cent. of the population, in 1951-52 its coverage declined to 18.8 per cent. of the population. There has likewise been a decline both in the number and membership of agricultural credit societies (excluding gain banks) in 1951-52 as compared with the previous year. While there was a slight increase in the number of agricultural non-credit societies, the membership registered a fall from 33.65 lakhs to 28.04 lakhs. Overdues during the same period rose from 11.7 per cent. of the outstanding to 13.5 per cent. The ratio of deposits to working capital in agricultural credit societies has fallen, from 14.4 per cent. in 1946-47 to 9.7 per cent. in 1951-52, while the proportion of owned funds has not shown any marked increase—a sad commentary on the part played by thrift in the Movement. The net profits of all types of societies have fallen from about Rs. 697 lakhs in 1950-51 to about Rs. 530 lakhs in 1951-52. I expect conditions would have improved a little in the last two years, but I am certain they would not reveal any striking progress.

I know that in a Movement like this where we are endeavouring to create a new social and economic order through persuasion, understanding and voluntary acceptance instead of the use of police power, we should not look for spectacular results. But we do expect that after 50 years of careful nurturing, the Movement should have been able to develop its own momentum and depend less on adventurous aid. The facts quoted above in fact show that quite the reverse is the case. Borrowings of the Movement, particularly from Government and the Reserve Bank, have increased considerably in the last few years. This, I am afraid, cannot be merely attributed to intensified activity. Since taken in conjunction with less than proportionate increase in owned funds, declining deposits and mounting overdues, the situation is not without its element of danger. The rates of interest charged by co-operatives still rule high in most of the States, and whatever reduction has been made in them has been for the most part due to funds provided by the Reserve Bank at concessional rates. Marketing Societies, Consumers Stores, Housing and Production Co-operatives have for the most part thrived only by direct or indirect Government support and there is little doubt that if that support is withdrawn, or even relaxed, many of them

would come to grief. The initiative for the education and training of the personnel and members of co-operatives, for the building up of proper channels for directing the flow of funds is a more ample measure to the agriculturists, for the encouragement to new forms of enterprises and experiments, and for the organisation of apex institutions at State and national levels, has all proceeded, if I may say so, to a very large extent from outside the Movement, largely at instance of the Reserve Bank or the Central and State Governments. Let me add that now that a democratic Government obedient to the will of the people is there, the tendency of self-helping institutions to demand privileged treatment as a matter of right has been on the increase, and the mere appearance of any rival organisation competing for official favour is enough to arouse the cry of co-operation in danger. If such an attitude is allowed to continue, the Movement will only stultify itself and will, in the attempts to gain an empire, only end in losing its own soul. For self-reliance arising from collective membership strength is the very essence of co-operation, and when that is lost, all other gains become illusory.

I am alluding to this because I am certain that the Movement, despite its numerical strength and outward manifestations of growth will not become a force to be reckoned with unless it forges its own sanctions by virtue of its inherent strength and capacity to inspire confidence. As the Executive body of the Movement, it rests with you to put vigour into it and make it a live force in the social and economic life of the people. I have described the position, perhaps in a little more lurid colours than it really is; but you will agree with me that the situation is a challenging one, and it is upto us to face it squarely rather than delude ourselves into a state of self-complacency. If in spite of the favourable economic and social climate created by the growing progress of development plans and encouragement of democratic institutions and active Government support, the Co-operative Movement fails to push ahead, it will, indeed be an unfortunate situation.

It is this which should make us do a little heart searching. As the body primarily responsible for the over-all progress of the Movement, have we done everything we should to set the Movement in its feet and prepare it for the task it has to undertake in building up the nation? Do we command the full allegiance of 138 lakhs of members engaged in diverse forms of economic activity and can we go boldly forward with the assurance that they be with us in all we plan to do? If co-operatives are to plan for their own future—

and we have no intention of imposing a plan from above—each one of the members of this Committee has to intensively study the problems of the common member in his area and effectively represent his outlook, his desires and requirements. Such a live contact is necessary; otherwise the sensory apparatus of the body co-operative will cease to function effectively; the little cells at the primary end will languish for want of timely advice and assistance and the Centre will lose its living connection with the units below. I need not enumerate the problems which need study; in fact, every aspect of the Movement which has grown in complexity and dimension await closer examination and study-member relationship, connection between primary and federal units, mobilisation of member capital, the adjustments necessary in the consumers and marketing co-operatives in a free market economy, co-operatives and other development organisations, etc. It is upto you to form small action and study groups or committees, both regional and functional, and collect and docket information on the basis of which alone plans can be drawn up. If you want to claim that co-operatives should be the main agency for the formulation and implementation of economic programmes for the village, this is an important preliminary task that you have to do.

I have no doubt you will agree with me that the situation disclosed by the analysis given above is none but dismal. This is more so because it is in direct and dark contract with my desire to push up co-operation. I am firmly of the view that no other country needs co-operation more than India. India needs it because of the agricultural nature of its economy, because of its backwardness, because of the love of lucre of some section of its people, to make easy, exorbitant and quick profits. India needs it because both the grower and the consumer still labours and lives at the mercy of the middle one. In order to end this situation I have been striving my utmost to instill greater enthusiasm in co-operation and place it on the all-India level. While, on the one hand, I feel somewhat distressed at the picture that has actually emerged because I pin my faith in the progress of this movement, on the other hand, I am told that any forcing of the pace of progress in co-operation is doomed to failure. Thus, there is very little room for optimism if we look at the way in which co-operation progresses in the country and the advice we receive from most experts. Under such a dilemma we will have to find a solution, and I hope your Union will be able to diagonalise the disease and put forward ideas and schemes which will help us to get over the present uncheerful circumstances. Unless

you take quick steps and alter the situation within a short time effectively, all my ideas, my enthusiasm, and my action is deemed to failure. I want to establish a central council of co-operation; I want to secure co-operation and co-ordination of all the State Departments of Co-operation; I want the support and sympathy of every Minister of Co-operation in the States, every Registrar employed by the State and all the various institutions. I have then planned to have a Central Marketing Board. I am not content with having these bodies just for the satisfaction of having them. I have yet to manifest my real nature in many directions, and I do not think I will wait very long to do away with any Body, any section or any department which fails to justify its existence. I want the Marketing Board to come into existence because I wish to afford to the Co-operative Marketing activities certain advice and direction with which, I hope, they will be able to function better. But all this superstructure of my ambition is destined to fail if what I expect of these Bodies is not realised. As you know, my ambition in this field is very high, as has been embodied in a resolution passed at an International Regional Conference on Co-operation at Kandy. I believe Co-operation is a solution for warring and conflicting ideologies even in the field of political thought. But all this would be superficial and hopelessly unreal if we are unable to resort to co-operation even in a small way in which we are doing at present, and we have only faults to discover and retrogression to record. I hope, however, that we will be able to change the atmosphere, and I feel convinced that this is not an impossible task provided we have courage and some amount of decisive action.

I often feel,—it may be the result of our culture or some other circumstances,—we are too soft-hearted a people. We are too much engaged in scratching one another's back, with the result that lot of humbug and hypocrisy flourishes freely on the Indian soil. I do not want to generalise any further, but even in this field of co-operation I think we have never thought of weeding out those undesirable and unscrupulous people who come into Co-operation only to derive some illegitimate gain and advantage. One of the first things, therefore, I would ask you or your Executive to do is to blackmark wherever you discover any persons who have been responsible for any unpatriotic action wherever you find it. I believe you have now been able to affiliate a very large number of Societies and Institutions in the field of co-operation in India. I would like you to issue a circular to your affiliated institutions and their heads so that they may inform us of the causes leading to deterioration and

the persons responsible for it. A copy of this circular letter should also be sent to Registrars of Co-operative Societies, so that they may help us to pick out undesirables wherever they are. I believe by and large the people are honest and helpful, but some individuals now and again take charge and behave unscrupulously. One man's bad action spoils the whole structure and brings to dust all the unselfish work that had been put in. I feel, therefore, that at least in this field we should make it a point to point out those people who have contributed to the deterioration of the Movement and not to its prosperity. There may be other solutions that may occur to you, but unless you instil a sense of integrity and imbue the co-operator with a real spirit of co-operation, we may probably be able to show large expansion, but the progress will be hollow from within. So when I am on the threshold of embarking upon a large and forceful drive to improve and expand co-operation, I would like your assistance in the field of clearing our own house as quickly and ruthlessly as possible, so that we do not continue to build on foundations of sand. Within the time allotted at my disposal I could not put down any more ideas of mine, but I am sure the knowledge and experience that this Executive has brought together will fill in those gaps in my thinking and my suggestions which may have remained, and tackle the whole question quickly and comprehensively.

I had, in fact, a long discussion with your Honorary Secretary, Shri B. J. Patel, and some of his ideas in the field of improving the tone and tenor of the co-operative movement impressed me very much. I hope he will relate them before you so that they may be given practical shape in such a form as may be considered desirable.

On the part of the Central Government I can assure you that we shall give you every encouragement we can to help you build up the Movement on solid and secure foundations. The Government are anxious that the Movement should go forward and that as far as possible, it should be self-propelled. At best, it can only lay the track, set up the signal points and regulate the traffic in a manner which would avoid major jams; for the rest, you may steer on your own power and reach the goal you have set out to attain. I wish you every success.

Jai Hind.

APPENDIX VI

A. SECRETARY TO THE GOVERNMENT OF ANDHRA, REVENUE DEPTT. (No. 6771 N/54-7, DATED THE 24TH AUGUST, 1954)

While sending copies of his inaugural speeches at the Conference of the State Marketing Officers and the Conference of the Agmark Ghee-packers held in 1953 with the letter cited, the Union Minister for Agriculture has made several suggestions for the improvement of Agriculture and desired to be informed of the steps taken in the way of giving practical shape to these suggestions. The action taken in respect of the suggestions, so far as Andhra State is concerned is indicated below:—

Constitution of an Advisory Council of Farmers at the State level.—Proposals for the constitution of a State Agricultural Advisory Committee which will deal with the various problems relating to Agriculture, are under consideration of Government. Besides representatives of farmers, there will be official representatives also on that Committee.

Organisation of an Information Bureau.—An Information Bureau has been opened in the office of the Director of Agriculture, Andhra at Madras to furnish necessary information to agriculturists. Besides, the Department has been publishing a monthly journal "Padipantalu" which has over 30,000 subscribers.

Financial and Technical Assistance by the Central Government for Tubewells.—As regards the Exploratory Tubewells Scheme mentioned by the Union Minister for Agriculture, the question of this State's participation in the Scheme is actively under the consideration of this Government.

Disposal of vegetable seeds produced at Kulu Valley.—English vegetables could be grown in limited areas only in this State. This Government are indenting on the Kulu Valley farm for their requirements.

Publicity to Crop Competition Schemes.—Information about the winners is published through the Grow More Food Journal of the Agriculture Department and through the Press.

Infusing interest to Farmers.—The Agriculture Department of this State has been celebrating "Farmers' Week" in every Research Station when large numbers of farmers visit the Stations. Recently 19 boys—all sons of farmers, were trained at Bapatla. The students of the Agricultural College, Bapatla, visit villages for doing propaganda and conducting economic enquiries.

Spread of prospopies Juliflora and Afforestation.—In connection with the celebration of 4th Vanamahotsava in 1953 the importance of the planting of Prosppies Juliflora has been widely stressed.

As regards afforestation, the question of creating village forests on river banks and unassessed waste lands in the State is under consideration of this Government.

The recommendations on 'Marketing' passed by the State Marketing Officers' Conference and the Ghee-Packers' Conference are being examined separately and a communication will be sent in due course in regard thereto.

B. Shri Mohan Lal Sukhadia, Minister for Agriculture and Revenue, Rajasthan (D.O. No. F.25(33)Agri./53 dated 25th August 1954).

I have issued instructions to the Director of Agriculture to comply and to let us know the results which should be communicated to you in due course.

The decision of the Government of India to award community prizes under the Crop Competition Schemes for the best village in each State which brings under competition the largest acreage, with regard to the specified crops and helps substantially to increase the yields of crops in that village, is bound to give a fillip to the movement of bringing more land under crop competition. The decision to award Medals to Tehsil and District officials will also give impetus to the officers.

The Rajasthan allotment of land to landless tenants with a view to resettling them on a permanent basis on cultivable waste lands is being pursued with vigour.

I am asking the Director of Agriculture to give serious consideration to your novel suggestion that the farmers should be organised to start their own institutions like Farmers' Banks to which they may contribute at the rate of Re. 1 per acre.

C. Shri D. T. Dave, Health Minister (Forests) Saurashtra (D.O./HLM/989 dated 7th August 1954).

I have received with many thanks the booklet containing your very instructive circular letters No. I to VI. The booklet form will be very valuable and easy to go through.

It is needless to reassert the value and importance thereof.

D. Shri K. F. Patil, Deputy Minister for Agriculture and Forests, Bombay (11th September 1954).

I would be happy to receive other volumes containing the remaining letters.

I found the letters very interesting and informative.

E. Shri George Thomasm I.A.S., Secretary to the Government Food Department (Agriculture A Section), Trivandrum (No. A.3-4037/54/Fd.D dated 15th September, 1954).

I am directed to invite a reference to the Circular letter No. VIII dated 1st May, 1954, from Dr. Panjabrao S. Deshmukh, Minister for Agriculture, Government of India and to inform you that the letters and the various annexures attached to it are found illuminating and highly instructive. They are very useful for the officers of the Agriculture Department, Block Development Officers, and Project Executive Officers in the State. I am, therefore, to request you to kindly arrange for supplying to this Government five more copies each of the circular letter under reference and of the past issues also.

F. Shri Partap Singh, Development Minister of Punjab (27th August, 1954).

Spirochaetosis (Tick fever).—This is one of the serious diseases of poultry specially in the villages. One of the important sources of spreading tick fever among healthy flock are the infected luggage vans of railway trains. Very often healthy stock despatched from poultry farms through the railway, contract the disease in transit and suffer heavy losses at the destination. These can be avoided by taking the following measures:—

- (i) the birds should be immediately examined for the presence of seed ticks on their body specially

under the wings and between the legs and pectoral muscles. If present, the birds should be suspected for suffering from tick fever.

- (ii) the birds should be dusted with some insecticides such as Gammexane, Hezycan etc., to destroy the ticks.
- (iii) all birds infected with ticks should be injected intramuscularly with Soamin or Sulfarsenol to nip the bud and before the disease appears in clinical form.

3. *Yield of Cotton*.—Punjab has made remarkable progress in increasing area and production of cotton within the short period after partition. The extent of progress made can be judged from the fact that last year (1953) the area under cotton was 2.5 times and production 8.5 times as compared with that of 1948. The progress made in respect of cotton has been even more striking. The area last year being 4.7 times and production 14.8 times as compared with that of 1948. The increase in production far outweighs the increase in area indicating thereby that average yield per acre has also gone up. The following table gives the figures:

Year	Average yield per acre of lint (lbs)	
	Total Cotton	American Cotton
1948	127	149
1953	243	264

According to the latest estimates of the area in production of cotton for the year 1953-54 for the country as a whole, the Punjab leads in respect of yield per unit area as shown in the following table:—

Important cotton growing States	Area '000 acres	Production in '000 bales of 392 lbs.	Average yield of lint per acre (lbs)
1. Bombay	3,836	1,092	111.6
2. Madhya Pradesh	3,657	647	69.4
3. Hyderabad	3,281	381	45.6
4. Madhya Bharat	1,588	336	82.9
5. Saurashtra	1,053	202	84.7
6. Madras	849	262	121.0
7. Punjab	588	365	243.3
(INDIA) (Total)	17,027	3,935	90.5

The above figures clearly show that Punjab is heads and shoulders above other important cotton growing states of the country in respect of yield.

4. *Sub-soiling Operations and Wilt Disease of Gram.*—Sub-soiling operations were discovered to be highly effective in combating the wilt disease of gram and enhancing grain yield. This operation could be conducted easily upto a depth of 12 inches during the monsoon season with a tractor plough using one bottom and weighing it with about 200 lbs.

In 1952-53 in the first gram crop following this operation of extra-deep ploughing, the incidence of the wilt disease had been reduced from 25.19 to 0.13 and the yield of the grain had been increased from 1.45 to 10.85 maunds per acre, giving a net profit of Rs. 100.38. The effect of sub-soiling operation is not transient but lasts for more than one year. The experiment was conducted during the year 1953-54 to study the residual effect of this operation. The results obtained in this respect have not only been remarkable but spectacular. The incidence of wilt has been reduced to negligible proportions (0.28 per cent.) and the grain yield has been increased from 18.51 to 26.74 maunds. On the basis of these observations and past experience it can be said without any fear of contradiction that sub-soiling operation will continue to exercise its beneficial effect on the third successive crop of gram as well. This operation though costly is very lucrative in the long run and its adoption is strongly recommended for effectively controlling the wilt disease in gram.

G. Shri Partap Singh, Development Minister, Punjab (No. 5440-Agr-54/1763 (CH) dated September 24, 1954).

1. C 273—*A new wheat strain.*—Among the new strains of wheat which are being bred with a view to combine high yield, high quality and resistance to diseases, C 273 promises to be a likely rival of C 591 and C 518, the two existing popular varieties. C 273 has been under test in large scale trials at the various Departmental Farms since 1950-51 under normal sown irrigated conditions against C 591. Although its performance has not been very spectacular and consistent, it has been out-yielding C 591 at most of the places by a fairly good margin.

Year	Number of Farms Where Where C273 tested out-yielded C591		Average yield of C591 (mds. per acre)	Average excess in yield of C273 (mds. per acre)
1950-51	9	4	25.08	0.27
1951-52	9	6	25.69	1.67
1952-53	7	4	19.63	0.69
1953-54	8	6	19.42	1.93
Total			22.46	1.14

The above results show that on the average of four years C273 gave 1.14 maunds more yield per acre than C591.

C273 has also been tested in rich land conditions at the various Departmental Farms against C591 and C518 during the last two years.

Year	No. of places where tested	Average yield of C518 (mds. per acre)	Increase (plus) decrease (—) in yield over C518 (mds. per acre) C 273 C 591
1952-53	6	24.75	Plus 0.84 —1.09
1953-54	6	21.36	Plus 2.92 —0.64
Average		23.05	Plus 1.88 —0.86

The results show that C591 gave lower yield than C518 but C273 gave higher yield by an average of 1.88 maunds of grain per acre.

It is significant to note that C273, apart from giving higher yield than both C591 and C518, possesses very attractive amber-coloured and high quality grains. In this respect it is as good as, if not better than, C591 and far superior to C518. C273 is also comparatively more resistant to yellow rust and new bunt. The following information is worth noting:

	C273	C518
<i>Character</i>		
1. Yellow rust attack	3	5
2. Percentage of bunted grains	9.9	14.5
3. Percentage of mottled grains	8.1	22.4

The above figures show that C273 is much less susceptible to yellow rust and new bunt and also possesses much better grains than C518. The data in hand shows that C273 is likely to do much better than the existing improved wheats on lands of average as well as rich fertility under irrigated conditions.

2. *Effect of feeding oil cakes on the growth of lambs and kids.*—Work carried out at the farm to study the effect of feeding different oil cakes on the growth of lambs and kids showed that linseed oil cakes caused better growth than any other oil cake. The sarson cake proved of poor food value. Cotton seed, Toria and Groundnut proved almost of equal food value, better than sarson oil cake but little less than the linseed oil cake

H.—SHRI M. BHAKTAVATSALAM, MINISTER FOR AGRICULTURE,
MADRAS (No. 116929/BIII/54-3, DATED 29TH SEPTEMBER,
1954).

I have just received your letter for September 1954 which provides as usual very instructive and interesting reading. In view of the shortness of time, I am reserving my comments on the various suggestions contained therein to my next letter.

The South West monsoon was weak during the first fortnight of this month but rainfall has been fairly widespread in the west coast in the first week. Showers also occurred on a few days in the other districts of the State but it was on the whole generally below normal. Even in Malabar, the rainfall was not adequate in the backward taluk of Ernad.

In Tanjore the harvest of the short term crop of paddy known as Kuruvai has commenced. The outturn is said to be fair. So also, the harvest in Malabar and Tirunelveli is also reported to be fair. There has been no marked trend in the price of paddy except for a normal appreciation at this time of the year. When the Kuruvai crop is fully harvested and comes into the market, there may be a slight reduction in price. While the index number of foodgrains was 461 in August, 1954 against 453 in July, 1954 there has been a slight decline in the cost of living index numbers mainly due to a fall in the prices of other articles of consumption like tamarind, chillies, oil etc.

As I have written to you separately, the shortage of Ammonium Sulphate is causing us some anxiety. Unless stocks to the extent required are received before the end of October, production will be materially affected. However, we are trying our best to make do with the limited supplies at our command so that areas where actual manuring is going on are given first priority.

The most significant feature of the season is the operations under the National Extension Scheme in the two divisions of Tanjore district, viz., Kumbakonam and Mayuram. The progress made shows that in the National Extension area, for the early crop of Kuruvai, an area of 50,185 acres out of 93,271 acres has been covered by Sesbania as green manure or 54 per cent. in this very first season. For the whole of Tanjore district including these N.E.S. blocks, the area under green manure for Kuruvai has expanded

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from 41,420 acres in 1952-53 to 1,08,740 acres in 1953-54 which is more than double. Another innovation as mentioned in an earlier letter is the paddy seed distribution and multiplication on a village basis. Under this arrangement primary seed at one pound per acre for the whole village has been distributed to selected ryots or the Village Agricultural Association for raising village seed farms by arrangements with the ryots of the village. The seeds harvested from these village seed farms are being collected and arrangements have been made to distribute them through the members of the Village Association in agreed proportions so that the whole village is covered by the improved seed. Out of 635 paddy growing villages in the two extension divisions, village seed farms have been raised in 501 villages in the current Kuruvai season. This method is being extended to other districts for millet and paddy. The initial success of this scheme is very encouraging but it remains to be seen whether purity of the seed supplied will be maintained to a reasonable degree. When you visit Vellore on the 3rd of October in connection with the State Co-operative Conference, we might possibly take the opportunity of taking you to Tanjore to see for yourself the work done in the National Extension Scheme areas.

We have made some slight adjustments for proper inter-department co-ordination of the activities of the various departments in the Community Project and National Extension Scheme areas. As a result of this, various development departments hereafter will look upon the Development Programme under the National Extension Scheme and Community Project, as their own and not regard them as exclusively the concern of the special project staffs. One of the Members of the Board of Revenue, *viz.*, the Commissioner for Land Revenue and Development has been entrusted with the general responsibility for supervising the work and co-ordinating the activities of the departments concerned and for seeing that the Collectors actually associate themselves with these programmes.

The Government have also constituted a Rural Development Board at State level comprising of Secretaries to Government concerned, Members of the Board of Revenue and the Heads of Departments to review the progress made and discuss the difficulties met with in the implementation of the Community Project and National Extension Scheme programme and other isolated items of rural development.

Our Director of Animal Husbandry has been spending considerable time as a Member of the Central Rinder-pest

Committee and the Cattle Preservation Committee set up by the Government of India. We have agreed to participate in the Pilot Scheme for Rinder-pest Control although we have completely eradicated rinder-pest in this State. Unless the other States also give effect to this Scheme there will be constant danger to cattle in this State in the border areas. We propose to set up quarantine stations at suitable centres on the border-line in order to carry out preventive inoculations and safeguard against the ingress of unprotected animals. Unless the safety belt is pushed forward for at least 10 miles all along the border, the danger of infection from other areas will be ever present. Dr. Nanda, Animal Husbandry Commissioner visited the Sheep Farm at Ootacamund and was much impressed by the work done and has proposed a regional scheme for cross-breeding with Cheviot and Romnev rams. The matter is under consideration.

As I have mentioned in some of my previous communications, the Food and Agricultural Organisation Fishery Experts attached to the State are doing excellent work. Mr. Paul Zeiner, the Naval Architect has completed a prototype deep sea fishing boat and I had the opportunity of launching it on the 10th of this month from the South Quay of the Madras harbour. Many labour saving devices have been introduced in the proto type fishing boat which will increase the fishing capacity of the vessel. Mr. Zeiner in a short speech explained that he has followed the traditional round-bottom type of the East Coast for his improved boat. Mr. Illgason, the Deep Sea Fishing Expert demonstrated the working of the boat and the shooting of the net with the help of the net chute. We are now under no illusion that the mere designing of these boats is an end in itself. I suggested in my speech that Co-operative Societies should come forward to distribute such boats to the fishermen so that they can improve their catches of fish.

We are actively examining the Report of Dr. A. L. Mudaliar Committee which we constituted to go into the future of our Milk Factory and incidentally other connected problems of milk supply of Madras City. It is unfortunate that Madras did not include any worthwhile Milk Supply Scheme in the First Year Plan, while Bombay appears to have gone far ahead and Bengal too to some extent. The Corporation of Madras is evincing some interest in this question at present but it is too much to expect it to undertake a big Milk Plan for Madras City. As you might know, with the assistance of a loan from the Government of India, it is starting a Sewage Farm just a few miles north of Madras. It

is now contemplating to start a Milk Colony nearby where the milkmen of Madras City could be concentrated. We are considering whether these two schemes could not be made the nucleus of a Scheme for a well-developed Milk Plan for Madras City but its cost is likely to be very considerable. We shall be approaching the Government of India in due course as soon as plans are made out.

In your last letter you touched upon the question whether Commodity Committees cannot do extension work and whether they cannot take pilot manufacture of goods where private enterprise is shy. The Commodity Committees are centralised bodies with emphasis on particular crops while extension or development work is essentially a State Subject. In actual operation, these Committees work their research schemes through State Departments of Agriculture only. It is not desirable that these Committees should take up wide scale extension and development work. It may be mentioned here that with reference to the suggestion of the Planning Commission that a high level Committee should be set up for examining the whole question of the organisation of Agricultural Research in the country with special reference to Commodity Committees, the Indian Council of Agricultural Research work done in the country beginning from the stage where Sir John Russel left the work in 1937. In my view, it is better to await this review before coming to any conclusions.

The amendment to the Constitution which has recently been passed by the Lok Sabha has been the subject of much comment in the newspapers here as elsewhere. Unfortunately, the Central Government gave very little time to the State Governments to express their views before introducing the Bill in Parliament. As assured by the Commerce Minister, this Government trust that the concurrent powers will be exercised by the Central Government only in very exceptional circumstances and after securing previously the maximum concurrence of the State Governments.

I am concerned to hear that you were laid up for some time due to eye trouble. I hope you are all right now.

I.—COPY OF LETTER No. A.3—1675/54/Fd.D., DATED 25TH SEPTEMBER, 1954, FROM SHRI P. S. NATARAJA PILLAI, MINISTER FOR AGRICULTURE & FINANCE, GOVERNMENT OF TRAVANCORE-COCHIN, TRIVANDRUM, TO UNION MINISTER FOR AGRICULTURE.

I have perused your Circular Letter No. VI, dated 1st March, 1954, and the various annexures attached to it with great interest and notice that they contain very useful and informative material for the State Governments.

In that letter, you have first of all stressed the importance of conducting cattle and other fairs in the various States and have suggested that one or two big centres of such fairs may be chosen by the State Government to be utilised for the celebration of an Agricultural Week. I agree with you that, if we make use of the opportunities afforded by these fairs for holding conferences of progressive agriculturists of the State and Officers of Government connected with Agriculture, Co-operation, Veterinary, etc., the large concourse of people who gather at these centres on account of feelings of religious sentiment and entertainment, can be given some useful instructions for guiding their work in the right direction. In our State, there are no annual fairs which run for a number of days together as are prevalent in some of the other States. The Fairs here are mostly one day celebrations and as such people from all parts of the State may not gather. We have, however, been utilising these occasions for holding agricultural shows and meetings and some of the Exhibitions organised in connection with these fairs have been serving as important forums for agricultural propaganda and conferences. The suggestions you have made in this respect will be considered for organising such conferences and holding agricultural shows in future.

Regarding the first anniversary of the propagation of the Japanese method of rice cultivation, I may say that in our State, a regular campaign week was organised for conducting the anniversary most successfully. The week was

inaugurated by a Radio talk by the State Director of Agriculture from the A.I.R. Trivandrum and during the first week of April 1954, hundreds of meetings were held all over the State in which the Agricultural Officers contacted as many farmers as possible in the villages and impressed upon them the advantages of the Japanese method. A number of demonstrations are now being carried on, in the present 'Viruppu' crop in the paddy fields of the different taluks in the State for propagating this method. We hope to popularise the method with greater vigour and enthusiasm during the current agricultural year and definite targets of work have been fixed for all the Agricultural Inspectors under the State Department of Agriculture.

As regards your observation that some of the principles of the Japanese Method of rice culture are also applicable to other crops like Jowar, Cotton, Jute, Bajra, Maize, etc., I would like to point out that these crops are not very important and popular in the State. Paddy is the principal food crop here; but your suggestions will be carried out wherever there is scope for the extension of the principle to crops other than paddy.

Referring to the field of Agricultural Research, you have stated that a time has now come for the country to undertake a somewhat detailed assessment of the results so far achieved in this respect. An earnest attempt in this direction will obviously enable us to find out whether the present arrangements for research are adequate, and if not, what the deficiencies are, and what should be the set up that we should work up to. This is a subject of special importance for our State where Agricultural Research is mainly carried out in the Research Department under the University while the Department of Agriculture is concerned principally with propaganda work.

The information contained in the letter about the evolution of useful agricultural implements by the Agricultural Implements Factory attached to the Agricultural Institute, Naini, Allahabad has been noted and that factory is being addressed to gather details of such implements in order to see whether any of these will be useful for the agriculturists of our State.

The brief account of your visit to Ceylon and the detailed notes you have appended to your letter dealing with the progress of Agriculture and Marketing of agricultural produce in that country are a source of inspiration and guidance for the State in carrying out future policies and programmes for agricultural developments. In stressing the importance of the use of fertilizers in an increasing measure by the cultivators, you have stated that Ceylon has made considerable progress in this respect. I may bring to your notice in this connection that in this State, commercial fertilisers like Ammonium Sulphate have steadily shown an increased off-take and we have always counted upon it as one of the methods of increasing the yields. In the year 1953-54 a quantity of 20,000 tons of fertilizers were distributed to the agriculturists here; that is, the same quantity which has been stated to have been distributed in Ceylon in 1953.

The advantages of a Government guaranteed price scheme as now prevalent in Ceylon will be considered by this State. Under a guaranteed system of prices for agricultural products, production can be adjusted to the needs of the State and a guarantee price scheme is one of the effective methods of increasing the production of any desired commodity. It will also facilitate the organised marketing of the produce.

Leaf-hopper pests of paddy have not become severe in recent years in this State. The methods of control suggested, will, however, be adopted whenever such infestations occur.

The question of development of sugarcane industry is not engaging the maximum attention of our State. 'A Scheme for Sugarcane Research and distribution of improved seed', submitted by this Government has already been approved by the Government of India and adequate provision for working the scheme has been included in the State Budget for the current year. The scheme is expected to be initiated shortly and when worked out, will contribute to a very great extent in the development of sugarcane cultivation in Central Travancore.

My attention has also been drawn to the emphasis you have laid on the necessity of propagating the use of Bone-meal as an important indigenous organic manure. There

are at present a few bone-crushing factories in our State and all the production of bones here is consumed by these Mills. So, there is no wastage of bones. There does not seem to be much scope for the working of 'Bone-Digesters' in this State. The State Department of Agriculture is, however, being instructed to experiment with a 'Bone-Digester' in order to assess its suitability under the conditions prevailing here.

MINISTRY OF FOOD AND AGRICULTURE

JAISALMER HOUSE,

New Delhi, November 6, 1954.

DR. PANJABRAO S. DESHMUKH,

Minister for Agriculture,
Government of India.

MINISTER FOR AGRICULTURE'S CIRCULAR LETTER
NO. XIV.

MY DEAR FRIEND,

In writing this letter for the month of October, my mind is naturally oppressed by the great tragedy that occurred only a few days back, namely, the premature and sudden demise of Shri Rafi Ahmed Kidwai, my senior colleague in the Food & Agriculture Ministry. It was quite natural that the whole nation should mourn his loss, because there are not many even in this large and great country who can be compared with him in his ability as an administrator as well as patriotism and nobility of heart. Although we were all conscious of the fact that he was straining himself too much and his health was almost precarious, nobody imagined that the end would come so soon and so suddenly. His contribution to the building up of the nation, whether in the political or in the administrative field is most notable, and it would be a long time before his place could be adequately filled by anyone else.

2. I began the month of October with a visit to Vellore where I inaugurated the annual Co-operative Conference of Madras State and also presided over the Conference of the Sugarcane Growers of the area. I am enclosing herewith a copy of the speech that I delivered on the occasion (Appendix I.). It was my first visit to Vellore which is a place celebrated by the fact that a large number of nation's leaders spent long periods in the Vellore Jail. The Conference was well represented and well attended. The presence of the Chief Minister of the Madras State as well as the Minister for Agriculture added to the importance of the event.

3. Soon after my return from Vellore, I went to Japan to attend the Fourth Session of the International Rice

Commission. It was interesting to note that in the establishment of the International Rice Commission India took a leading part some seven years ago. It actually came into existence formally on the 4th January, 1949. Its first Session was held in Bangkok from the 7th to 13th March, 1949. It is gratifying that the number of countries who are members of the Commission has increased from 10 to 23. An increasing attention is being given to a wide variety of subjects in the several sessions of the Commission and the meetings of the Working Parties.

4. The major subjects discussed at these various meetings consist of the following:

- (a) Improvement of Rice through breeding;
- (b) Improving Rice production through Better Fertilizing Practices;
- (c) Improving Rice Production through Breeding and through Better Fertilizing Practices (to cover those topics which are of concern to both fields of interest);
- (d) Mechanization of Rice Production;
- (e) Other Rice Production Problems;
- (f) Development of Extension Services;
- (g) Reducing losses through Improved Operational Methods;
- (h) Utilization of Rice-by-products;
- (i) Nutritional Aspects of Rice;
- (j) Economic and Related Aspects of the Rice Industry, and
- (k) Use of Rice Fields for Fish Culture.

5. Besides these subjects which have received an amount of attention in the Commission, such subjects as fall under the category of (1) "Mechanization of Rice Production", (2) "Other Rice Production Problems", and (3) "Reducing Losses through Improved Operational Methods", received attention for the first time during the Plenary Session of the Commission. As a matter of fact, until this Session the activities of the Commission were confined to two major items long deliberated upon by the Working Party as (1) Rice Production through breeding, and (2) Fertilizers. The Working Parties continued their deliberations further on these items about a week before the Fourth Session commenced on the 11th of October, 1954.

6. The Session opened with a welcome address by His Excellency Taketora Ogata, Minister of State, Prime Minister *ad interim* and Minister for Foreign Affairs *ad interim*. In his speech he referred to the fact that that was the first Conference ever to be held in Japan by an Agency of the United Nations of the Food & Agriculture Organisation, and added:—

“The Japanese Government and people place very great expectations in this Conference which is being held to exchange views and information and conduct studies on methods of improving rice cultivation, distribution and consumption, thereby contributing towards the raising of living and nutritional standards of people throughout the world.

“It is the hope of the Japanese Government to promote its friendly relations and also its economic and technical cooperation with other nations through international conferences of this kind. At the same time, I wish to point out that Japan is willing to offer as much technical assistance as she can”.

7. The Conference was also addressed by Shigeru Hori, the Minister for Agriculture & Forestry of Japan. In a brief address he referred to the fact that the history of Japanese rice eating and cultivation dated back two thousand years, and rice was so deeply woven in the lives of the Japanese people that it could never be separated. He then added:—

“But the ever-increasing population and the limited arable land have brought a deficit in the food supply of 3 million tons a year. The Japanese Government and farmers are doing their utmost to increase the production of rice and other foods. In some parts of the world there is a surplus in agricultural products, but as a whole the world food production cannot keep pace with the population increase and thus world in reality suffers food shortage. There is a saying that ‘no peace exists on hungry stomachs’. Hunger is the greatest single threat to the preservation of peace and civilisation in the world.”

8. The Minister of Health and Welfare sent the following message to the Conference:—

“It is happy to note that the world food production today has almost restored its pre-war capacity

and the food situation has been greatly improved in spite of the fact that there were critical periods of time for food supplies just after the last World War.

"However, the production and consumption of rice have still left us many problems to be solved. For example, our country and many others, whose people are living on rice, have been experiencing inevitable difficulties on nutrition, and it needs the international collaboration and joint action among these countries to find the ways and means to remedy the situation we are confronting today. It is our belief that by sharing the findings and experiences and exchanging the ideas and opinions will we only be able to go forward for the improvement of the food situation which is so vital to the welfare of the human being. For this reason, we are looking forward to find most helpful suggestions out of your deliberation through many sessions in the present Committee Meeting.

"It is happy to say that our Government has always shown keen interest towards the nutritional aspect of rice-consumption and some achievement has been made in this particular field, and it is our earnest desire that you may have an opportunity to know of some of our work during your stay in this country. Furthermore, it is our earnest desire that you may be able to know of our people and our country during your stay in order to have better understanding which is so vitally needed in the complexed world in which we are all living.

"I wish you every success of this meeting and hope that you will enjoy your stay in this country throughout the Conference."

9. The Session of the Commission was attended by delegates from as many as 22 Nations, besides Observers from the Joint Commission on Rural Reconstruction, World Federation of United Nations Associations, as well as the South Pacific Commission. The Japanese Delegation was naturally the largest consisting as it did of 28 individual delegates, while the Indian Delegation consisted of four or the same as Burma and Korea. Thailand and United Kingdom Delegations consisted of five each, whereas the American Delegation was eight strong. It was the unanimous opinion of every delegate that the arrangements for

the Commission were elaborate and excellent. A very large number of persons were deputed to look after the comforts of the Delegations, but what was of outstanding note was the amount of literature prepared specially for this Session of the Commission by the Japanese Government in the English language.

10. It was obvious that Japan had done very considerable work both in the field of Research and extensive rice production, the former extending over the better part of a century. This well written and nicely printed literature enables us to obtain a comprehensive picture of the work done and progress attained in the past. The valuable results of research in Japan were, according to many, available in the English language for the first time, to other countries, and every one thought we all stood to benefit from them. I propose to send you in due course a list of this literature produced and distributed on the occasion. It is not possible to make copies of these available to even all the rice-growing States in India, but I may be able to spare some of it for circulation.

11. There was also a very neat little Exhibition of rice and rice-growing arranged by the side of the Conference Room. For a rice-growing and rice-eating country like India, it should be worth while having some similar and permanent Exhibition not only in Delhi but at least few more places in the country. There was also a special demonstration of mechanization of rice cultivation by the Fergussons and fairly large Exhibition of agricultural machinery, principally useful for rice growing, harvesting and processing. I have tried to collect detailed information of the machines shown at this Exhibition. Copies of these booklets and catalogues also it may be possible to circulate on request.

12. I am attaching herewith a summary of the report of the deliberations of this Session for your information (*APPENDIX II.*). I am happy to add that the Indian Delegation, although smaller than I should have liked, distinguished itself in several ways. It was natural that my presence at the Session should be more specially marked by every Delegation, and that the Session should look to me for advice and guidance in several matters. This was not only because I was the only Minister attending the Commission, but more because of the reputation India had gained in securing larger yields by the adoption of the Japanese Method. Most of the delegates naturally had only a vague idea of what we did from the time we started the campaign in favour of the Japanese Method, and

they, therefore, were very eager to have a clearer picture from me about what and how exactly we did it. Fortunately, Shri S. C. Roy, our Extension Commissioner, who had already taken part in the working parties, was one of the few persons who knew about the details of the campaign and he had, therefore, not only enlightened the Delegations with an account of our work, but had also distributed our literature on the campaign which I had sent with him. I also gave them as many details as possible of what we had done from the 7th of January, 1953, i.e., the day when I decided to popularize the method, and the results that were obtained last year. I also stated the targets we were aiming at and the strong hopes we entertain of increasing the production in the current year.

13. After the conclusion of the Session, the Ministry of Agriculture of Japan showed the Delegations some of their Research and other institutions. There is a strikingly large number of research workers engaged on rice in Japan and all of us were very favourably impressed by the depth and extent of the work that was being carried on. It was also gratifying to see the uniformity of the rice crop standing in the fields laden with much more grain than can be observable to such an extent in any other part of Asia. In fact, in one of my speeches I expressed surprise that the Japanese Method should not have attracted greater attention, earlier. Firstly, it was patent that Japan has had for decades past an astoundingly high average yields, highest by far in the Continent of Asia, secondly, it should have been also noticed long ago by the other rice-growing countries of Asia how Formosa and South Korea alone came up next and very close to the Japanese standard. The fact that these countries have high averages is most closely related to the adoption by these countries of the Japanese Method during the Japanese occupation of these countries. I also made bold to forecast that with the surprisingly encouraging results in India, the Japanese Method was bound sooner or later to be adopted by countries like Pakistan, Ceylon, and Burma and other Asiatic countries with definite and immense benefit to them all. If these hopes were realised, moaning over the rapid increase in population in these areas would be a thing of the past, and, in all probability, we may suffer from progressively more burdensome surpluses of rice as years roll by. It was also obvious from the information that I gathered that besides better and careful nursing of the crops, it was the use of the fertilizers that had been responsible in increasing the yields whether in Japan, South-Korea or Formosa.

14. I quote below certain paragraphs from a recently published book on 'Means of Increasing Rice Production' at Geneva, by Centre D'entude De L'azote-Geneva, in June, 1954:—

"Greater use of fertilizers, which is undoubtedly one of the most affective means of increasing rice yields so as to obtain large supplies of rice for the Asiatic countries which are deficient in this commodity and where many food producing areas are cultivated as intensively as circumstances permit. Double cropping is quite common in these regions, some areas producing even three crops annually. Unless, therefore, some provision is made for maintaining soil fertility by means of chemical fertilizing, the constant and intensive use of the land must inevitably exhaust the soil and is reflected in declining rice yields.

"Up to the present, however, inorganic fertilizers have been applied to rice on a relatively small scale in most of the Asiatic countries. Before the second World War Japan, Korea and Formosa were practically the only Asiatic countries in which significant quantities of commercial fertilizers were employed. As far as other rice-growing regions of the world were concerned the fertilization of rice was practised only in the U.S.A., Egypt, the rice growing countries of Europe and Australia. It is clear from information available that one of the most promising methods of increasing rice yields in the tropics is the extension of the practice of intensive manuring, judiciously combining the use of green manure with local fertilizing materials and commercial fertilizers. The high price yields of Japan should be considered to be the result of the judicious combination of fertilizers with the natural manures employed there for centuries. Nitrogen is the most important element in which the soil is deficient, although in many areas phosphates are needed in addition to nitrogen. In some areas, e.g., Java, Thailand and Indo-China soils respond even more to phosphates than they do to nitrogen. Most rice soils contain sufficient potash for the requirements of the crop, although in some countries symptoms of potash deficiency have been observed on sandy soils".

15. The following quotations will also indicate to you the importance of sulphate of ammonia the most suitable form in which nitrogen should be applied in paddy growing:—

“Nitrogen in the ammonium form is most effective for application to paddy fields. As demonstrated by experiments nitrates give definitely inferior results owing to losses from denitrification in the paddy soils with their reducing qualities. In the first place, Indian experiments have shown that sulphate of ammonia was the most effective of all the inorganic nitrogenous fertilizers tested. Poor results were obtained from nitrates and calcium cyanamide, while applications of ammonium nitrate, ammonium phosphate and urea gave results that compared favourably with those obtained from the use of sulphate of ammonia.

“In spite of the fact that all the results were not strictly comparable as the experiments with different fertilizers were carried out at different localities and there was, in addition, considerable variation in the relative effects of various fertilizers from one year to the next, these results were considered to be reliable enough to point to certain definite conclusions and to enable the following relative efficiency rating for the above-mentioned fertilizers to be established.

Relative efficiency of various nitrogenous fertilizers

(TAKING SULPHATE OF AMMONIA = 100).

<i>Fertilizer.</i>	<i>Relative rating.</i>
Sulphate of ammonia.	100
Ammonium nitrate.	92
Ammonium phosphate.	86
Urea	82
Calcium cyanamide.	64
Potassium nitrate.	44
Sodium nitrate.	40

The figures show the undoubtedly greater efficiency of the ammoniacal forms of nitrogen than the nitrate forms. The same tendency can be deduced from the results of similar experiments in other countries.”

16. It would be no exaggeration to say that the Japanese agriculture is veritable horticulture, inasmuch as every single plant is looked after like a child and every inch of the land is cultivated so well and so artistically that it is a constant delight to the eye. I was rather surprised to find that most of the crops grown in Japan are the same as in India. I found groundnut, rice, maize, sorghum, sweet potato, all actually growing in the fields. There was one millet, I have not yet seen in India, the seed of which I have brought with me, which is known as *Ava* in Japan. It is very similar to *Ragi* but is like jowar in colour. The ear is thicker far longer than *Ragi* but very similar to it. The longest ear-heads may be over 10" in length and the thickness well over an inch in diameter.

17. Japan also grows flowers and vegetables, most of which, if not all, are found in India. They also grow tea which they use in a different form than the tea we drink in India. Owing to a long spell of very cold weather, the Japanese farmer cannot afford to lose even a single day in the planting as well as harvesting of crops. They have to start sowing paddy seed in May when the wheat is still standing in the fields. I am speaking here about a variety of paddy known as upland paddy which grows without irrigation. It is sown, broadcast, but between the wheat rows, and therefore in lines. Wheat is sown in October after paddy harvest. In some places tea is grown in large areas, but in areas where upland paddy grows, we have what are known as hedge-tea, the tea plants being used as hedges round the field. Wheat is sown after a crop of sweet potatoes and the sweet potatoes have also to be sown before the wheat crop is harvested in the month of June.

18. The Japanese use *Ava* by mixing it with rice at the rate of some 30 per cent. in cooking, evidently because there is chronic scarcity of rice in Japan, the area available for agriculture being limited. Japanese used to import considerable quantities of rice from outside, and because of this it is a very strictly rationed article. It has also a strict system of procurement from the cultivators: But since the war which resulted in lesser number of people being available for agriculture, the prices given to the agriculturists are fairly high, and this has contributed to the prosperity of the cultivators. The number of animals in Japan is very limited, because

Japanese are wise enough to know that their fodder supplies are not plentiful. Although 90 per cent. of the people are Buddhists, beef and pigs are eaten on a large scale together with innumerable varieties of fish and other sea products.

19. The importance of fertilizers for better production could also be judged from the experience in rice growing in Korea and Formosa. The book I have already quoted from, states as follows:—

“During the period of annexation to Japan from 1910 to 1946 rice production in Korea increased considerably through improvements in irrigation works, an increased and more efficient use of fertilizers, higher yielding varieties and more efficient control of pests and diseases. 1.6 million hectares thus produced from 1934-38, an average production of 3.7 million metric tons of paddy. This was largely due to ample fertilizer supply from the more industrial north and of imports from Japan. No sooner, however, fertilizer supplies were curtailed, a decline in rice yield commenced. The U.S.A. tried to provide South-Korea with urgently needed fertilizers as quickly as possible, and some hundreds of thousands of tons of nitrogenous and phosphatic fertilizers were imported and distributed among the farmers at reduced prices. This device proved to be an effective aid in restoring the volume of rice production in South Korea to a point approximating pre-war levels. For 1.6 million hectares a quantity of 2 lakh tons of nitrogenous fertilizers annually is recommended”.

In China, it has been reported, rice growing is characterized by the use of large amounts of many kinds of manures, chiefly of the organic type. But upto the present, hardly any organic fertilizers are used for this crop. This omission is mainly responsible for the average annual production in the country of about 25 quintals of paddy rice per hectare as compared with 36 quintals in Japan. It is obvious, therefore, that even China cannot compare itself with Japan in its average yields, there being very much more than two-thirds of the average yield in Japan.

20. As in Korea, rice production increased considerably in Formosa under the Japanese rule. 1938 was the year

of maximum production when the area under cultivation amounted to 625,398 hectares yielding a total production of 1.4 million metric tons of paddy; the average yield of paddy was 2,243 kilograms per hectare. The total quantity of fertilizer used was 389,334 tons and an average quantity of fertilizers applied per hectare was 623 kilograms. It was obvious that the high production was due to the fertilizers, a total output of paddy of average yield being closely connected with the quantity of fertilizers used.

"The total fertilizer consumption for all crops in 1938 reached a peak of 6,48,800 tons, consisting of 1,77,995 tons of soyabean cake, 1,69,642 tons of sulphate of ammonia and 2,33,213 tons of mixed fertilizer.

"The consumption in terms of elements was 76,793 tons of N, 24,649 of P_2O_5 and 5,552 tons of K_2O

"After 1938 the consumption of fertilizers steadily decreased to no more than 3,25,702 tons in 1943, and in 1945 it dropped to a figure of not more than 10,000 tons of chemical fertilizers.

"The manner in which this sharp decline in fertilizer consumption affected crop yields, in spite of a considerable increase in compost consumption (from 4.6 million tons in 1939 to 16.9 million tons in 1943), is illustrated by the figures for rice production, which fell from 1,100,000 tons per annum during 1940-43 to 630,000 tons in 1945. The decline in yield of the first crop was from 2,000 kg. to 1,400 kg., and of the second from 1,600 kg. to 1,000 kg. per hectare. All soils in Taiwan respond to nitrogen fertilizing. The productive soils apparently respond to N. even more than do the less productive ones".

21. I think it would interest you to have some idea of rice production in Europe also. Italy is one of the chief rice-growing areas in Europe, and it is mainly grown in the Po Valley. Rice-growing in Italy is characterised by unusually high rates of production and thus is a subject of great interest throughout the whole rice world. Only in Spain are higher yields obtained. This is illustrated by

the average annual pre-war production figures in the following table:

*Average yield of paddy per hectare over the period
1934-35—1938-39, according to F. A. O. reports.*

	Quintals
Spain,	62.3
Italy,	53.0
Japan,	36.3
Egypt,	35.0
China,	25.3
British Guiana,	24.8
U.S.A.,	24.7
Indonesia,	15.8
Pakistan,	14.8
Brazil,	14.3
Burma,	14.1
India,	13.3
Thailand,	12.9
Indo-China,	11.6
Philippines.	10.9

22. Although favourable climatic conditions, including a lengthier day, and therefore, greater light intensity and more solar energy as in tropical countries, which favour the physiological activities of the plant, may contribute to Italy's high production level, other contributory factors undoubtedly are:

- (1) an intensive fertilizing scheme, and
- (2) an effective rotation scheme.

As rice farms here are predominantly diversified rice-dairyfarm, the general practice in the Po valley is the growing of rice for some successive years, followed by a series of years of grass and legumes for hay making and pastures to feed dairy cattle. This has proved to be such an excellent rotation scheme that the practice has now been extensively adopted in the Rice Belts of Louisiana and Texas in the U.S.A.

23. The fertilizing scheme is based on an ample use of farmyard manure before planting (20 to 60 tons per

hectare), supplemented by applications of chemical fertilizers, including a mixture of sulphate of ammonia, superphosphate and potassium chloride, at an average rate of 750 to 1,000 kg. per hectare. Two-thirds of the fertilizer is applied before seeding or transplanting and one-third as a top-dressing early in the growing season.

24. Spain has also been producing rice for many years especially in the provinces of Valencia and Tarragona. The total area is 48,50,000 hectares, and the total production 180 to 200,000 metric tons of rice, which is almost entirely consumed in the country itself. The fact that average yields in Spain are higher than anywhere else in the world, proves that extreme care is bestowed on rice culture, including the use of fertilizers (mainly nitrogenous fertilizers) on a large scale.

25. The nitrogenous fertilizers are allocated to the Federation of Rice-growers by the Ministry of Agriculture, and are further distributed via the local Rice Syndicates. The following quantities of nitrogenous fertilizers have been distributed during the following years to the members of those Syndicates:—

Years	Hectares in cultivation	Nitrogenous fertilizers in metric tons
1939	41,876	16,155
1940	47,357	15,812
1941	47,008	19,557
1942	27,279	26,238
1943	47,673	29,856
1944	48,001	24,118
1945	48,068	19,944
1946	50,047	16,545

Sulphate of ammonia is considered the most suitable fertilizers, followed by ammonium nitrate and calcium cyanamide.

26. In the course of the discussions at the Session of the Commission, a delegate from Pakistan pointed out the difficulties in their use of fertilizers. As what he said would give us a better idea of what we have been able to achieve in India, I wish briefly to refer to it. He stated that in 1952 the use of fertilizers in Pakistan was quite a new thing. They had obtained some 10,000 tons of fertilizers but could hardly use more than 5,000 tons. This was in spite of the fact that 50 per cent. subsidy was allowed to wheat growers. In 1953 they tried to push the

utilization of some 50,000 tons of fertilizers giving subsidy to rice-growers at the rate of 66½ per cent. For 1954 also a 50 per cent. subsidy is available, but the delegate complained that the cultivators had yet to develop much of a taste for it. Considering these facts against the tremendous demands for fertilizers leading, I am told, to occasional black-market. I think, we have reason to be proud of our achievement. Taken in the light of the importance of the use of fertilizers for greater production I have dealt with at some length in this letter, I feel confident of your agreement with me, because I have no doubt we will be continuing to tread on firm ground with justifiable confidence once our people learn to use fertilizers.

27. The above details are intended to convince you how greater production is linked, of course, among other things, with larger use of fertilizers and how in spite of our rapid progress our total consumption is far far behind not only Japan but even Korea and Formosa. I am fully convinced that all doubters and shouters against use of chemical fertilizers should be given no quarter and people should, I think, be warned against such cranky people. We have no fertilizers to waste by applying over-dozes and thus the dozes we recommend are by no stretch of imagination to be regarded as giving rise to the remotest possibility of causing harm. My trip to Japan and further studies have confirmed me in my original view. Without resort to its use we can never hope adequately to replenish what we have deprived the soil of. Secondly, there is no instance of a country which has increased its yields without chemical fertilizers. For a long time to come there is no risk in India of over fertilization.

28. As a result of an article in the "Reader's Digest" published in the American Edition for the month of September 1954, the introduction of the Japanese method of rice cultivation in India has become a matter of international information and seems to have already attracted considerable attention. As you might be knowing, the "Reader's Digest" is published in various Regional editions and in innumerable languages. While in the English editions the article is printed on page 137, the Japanese edition gives this article the first place. This is, of course, a summary of the more detailed article published in the "Christian Science Monitor" of New York. Since its length is not much, I am attaching a copy with this letter (APPENDIX III). It seems that the news of the introduction of the Japanese method in India was known to some people in foreign countries

even before this article but not so widely. In any case, I am getting quite a few queries from foreign countries these days. A summary of the letters is given below:—

- (1) Copy of letter dated 3rd August, 1954 from Mr. Vernon Elledge, Attorneys at Law, Second National Bank Building, Houston 2, Texas:

"I notice in the local newspapers a report that farmers in India, using new methods prescribed by the Government, have greatly increased their production of rice, and that production of 8,000 pounds per acre is not out of the ordinary.

"It will be appreciated if you will send me any literature you may have that is printed in English which will give the methods advocated by the government which resulted in this high rate of production".

- (2) Copy of letter dated 23rd September, 1954 from Mr. Gholam Ali Rodd Department of External Affairs, Government of Iran, Tehran:

"I have read recently in American magazines of Your Excellency's high successful efforts in the achievement of world record yields in rice culture in India. I have had one of the articles translated into Iranian and have submitted it to his Excellency Adl our Minister of Agriculture with the suggestion that if we were to follow suit we also could probably achieve for Iran what Your Excellency has achieved for India.

"With this object in view and in the interest of our international relationship. I should feel extremely grateful if you would instruct to have sent me copies of the illustrated pamphlets and literature you have had printed for the guidance of Indian farmers in adapting Japanese methods of rice culture. If any of these were available in the English language it would be an added advantage.

"Your Excellency is doubtless aware that Indian methods of rice culture are more or less the same as those of Iran, and it is our common belief that either we derived our rice culture methods from you or you derived your methods from us; and/or we both (partially at least) derived our methods from China".

- (3) Copy of letter No. Pb-2/54, dated Manila the 24th September 1954, from the Legation of India:

"We would be grateful if you could kindly send us some copies of the pamphlet illustrating the Japanese method of rice culture which, we believe, have been distributed by the Ministry".

- (4) Copy of letter, Camp Murphy, Quezon City, dated the 6th October, 1954, from Lt. Colonel Arturo De Los Reyes, General Headquarters, Armed Forces of the Philippines, Research and Development Division:

"I read with full interest an article in the September issue of the "Reader's Digest" entitled "India's Rice Revolution". I learned too from said article that as Minister for Agriculture of India, you caused the widest publication in your country of the highly successful rice planting method adopted by Messrs. Harishchandra Patil and Pranlal Kapadia as learned by them in 1952 from Dr. Iwao Kamo, a well-known Japanese paddy expert.

"In view of your Government's outstanding achievement that literally revolutionized your national rice production level to the extent of attaining self-sufficiency in the short span of two years and in view further of my desire to try your system of rice culture in the Philippines, may I request your kindness and benevolence to furnish me with as complete, accurate and comprehensive literature, preferably with data and pictures, on your aforementioned method of rice culture? The article in the "Reader's Digest" was so condensed that one could not even attempt to try the method as described therein. Such information as the concentration of the brine solution for selecting the desirable seed, the kind and strength of sterilizer solution used, the kind and amount of fertilizer applied per acre and such other detailed material to enable one to try the method as published would be most welcome".

- (5) Copy of letter dated 7th October, 1954, from Mr. Soter S. Tusalem, RCA Communications, Inc.

P.O. Box 19, Goeku; Okinawa, Ryukyus Islands,
(Gibraltar of the Pacific).

"This may come as a surprise to you Doctor, since I am a Filipino citizen writing to you instead of to our own Secretary of Agriculture. However, what promoted me to write you is an article I read in the issue of the Reader's Digest of September 1954, page 159, a condensation of an article originally published in the Christian Science Monitor by Suresh Vaidya, about "India's Rice Revolution".

"I am 31 years old and though with no previous agricultural experience, would like to be a farmer. I have bought some 16 hectares of land in Mindanao, Philippines, and will be going home early next year to cultivate it myself. I am very much interested in the new way your people cultivated their rice and raise their yield several times better than the old method which is not different from the Philippines method.

"I understand your Ministry of Agriculture has distributed illustrated pamphlets regarding this new method of production, and I would like to try it on my land. I have thought of writing to the author of this article, but on second thought, you can help me more fully with this problem on account of your official position. I would like very much to also get the address of Dr. Iwao Kamo, who I believe originated this method of production. I would like to thank the author and the Reader's Digest through you, if that is possible, and I would sincerely appreciate your help in airmailing me one of those illustrated pamphlets or if you can refer me to one of your young farmers, I would be very glad to correspond with them and between us little people, we probably can help in whatever little we can, to help other people understand that Democracy which strive on peace and the free flow of ideas between Democratic countries is still better than Communism.

My respects to the Honourable Prime Minister, Mr. Nehru, to you and to your people".

- (6) Copy of letter dated 18th October, 1954, from Mr. Buenaventura C. Lopez, Secretary, The National Rice Producers Association, 2nd floor, Philippine

Bank of Commerce Building, Plaza Sta, Cruz,
Manila:—

"In the July 1954 issue of the Christian Science Monitor and in the September issue of the Reader's Digest there appeared an article by Mr. Suresh Vaidya, entitled "Indian's Rice Revolution". Mention is made of an eight-page illustrated pamphlet distributed by your office to explain to rice growers how to improve their production of palay by applying the Japanese method.

"Our Association is very much interested in securing copies of this pamphlet and such other literature on rice which you can spare to send us. Our country has an average production of 27 cavans of palay per hectare, each cavan weighing 44 kilos. This year we may import up to 200,000 tons of clean rice, clearly indicating that we are still very far behind in our rice production. Our goal is to be self-sufficient in our local supply to insure us that the said experience we suffered during the Japanese occupation may not be repeated due to insufficient supply of this vital cereal.

"We therefore solicit your kind cooperation in sending us at your earliest convenience the above-mentioned literature and also your permission to reprint them here in the Philippines."

29. The Editors of the "Reader's Digest" have also sent a very appreciative letter to the following effect:

"Your influence in increasing the rice production in India will benefit farmers and consumers throughout the world. We are grateful to be able to present your agricultural methods to them through our international editions."

30. Apart from the information given by the Extension Commissioner, Shri S. C. Roy, at various meetings and information conveyed through my speeches in Tokyo at the International Rice Commission's meetings, we had taken both the films on Japanese method that we have prepared in India with us to Japan. One was prepared by the Indian Council of Agricultural Research in collaboration with the T.C.A. and the other by the Gandhi Smarak Nidhi at the Kora Kendra in Bombay. Before leaving Japan for India I had planned to show both these films to

the Japanese experts, officials and Ministers at a luncheon party. The sad and shocking news of Rafi Sahib's death, however, upset this programme but while cancelling the big gathering I had proposed, I called a few Japanese friends and showed them the Indian Council of Agricultural Research film. For want of time the other film could not be shown.

31. I am very happy to say that this film impressed the Japanese experts and some officers whom I was able to show it immensely. This was done from 2 to 2—30 in the afternoon on the 27th October, and I had planned to leave Tokyo the very same night. For want of time, the other film could not be shown that day. I had invited Mr. Goro Watanabe, Vice-Minister and Chief of the Secretariat in the Ministry of Agriculture and Forestry. He complimented me on the production of the film after it was shown to him. Before I left Tokyo he sent through one of his Assistants the following message on his visitor's card to be given to me at the Airport.

"To His Excellency Minister Deshmukh: We must reimport what you have done in your country. We are calling members of Diet. May be two weeks after. Sd./ Goro Watanabe".

32. I am afraid my schedule of broadcasts to initiate various campaigns of better production has been somewhat upset owing to my eye trouble as well as my absence from India. But I hope to catch it up shortly and initiate with full vigour the sugarcane campaign from the time even before ploughing is undertaken. With this aim in view, I have collected certain information and some publicity material is also being prepared. I am glad to say that even a somewhat belated start for better cultivation of sugarcane has not been in vain. In fact, the results are far beyond my expectations, and they are already reflected in the concrete fact that in some cases at least the crushing season has started much earlier than usual. At this stage I would not like to say anything further, but I hope you will see that we carry out our determination to undertake a full-fledged campaign for improved cultivation of sugarcane during the coming year so that we fulfil the expectations of the country in the matter of cane products, i.e., both sugar and gur. It may be that we may not succeed in eliminating all imports during the next year or two, but it should be possible, at any rate, to reduce them very substantially.

33. As I already said, sugarcane is a wholly irrigated crop, and it is, therefore, more easily tacklable everywhere

than even paddy, which in very large areas is merely rain-fed. If we put our shoulders to this new task, an area of 40 lakh acres should be sufficient to meet our needs, both of sugar and gur. This may be regarded as a somewhat unbelievable statement. But just think for a moment in terms of actual facts. The average all-India production has hardly been even 15 tons an acre. I am told that during the last two years this has dwindled down still further. We also know that in India itself, we have produced, at least in some instances, the maximum of 100 tons per acre and above, and even in U.P. and Bihar instances are not wanting where many cultivators can get above 20 tons. Now, if we can increase the average by even 5 tons per acre, it would mean more than 33 per cent. additional cane, or, in terms of additional acreage, would mean adding over 13 lakh acres to the cane area at the present rate of production of sugarcane. The additional sugarcane production that I envisage, therefore, is thoroughly within our easy reach. All that the accomplishment is waiting for is a serious and concentrated effort. Now, this additional production can be done even by partial improvement of our practices. Without trying to pose myself as an expert, I have no doubt that with careful ploughing and two minimum doses of fertilizers, we are capable of getting 50 per cent. increase in the yield, at any rate, in those areas where the yields are so hopelessly low as 8 and 10 tons per acre. So, even if we concentrate on these two items, I feel certain we will achieve the objective and exceed our target. I have been already talking to various people with an amount of confidence, and I feel certain that that confidence is in no way misplaced. It is, however, upto you, to your department and the cultivators to place the Crown of Success on Mother India's head for the second time in such quick succession.

34. Besides what I have said above about Japanese agriculture, the following additional information would, I think, be useful to you all. (This is based on a very fine study by S. C. Salmon, in an article entitled "Crop Improvement in Japan", published at page 1017 of the November 1948 issue of the Journal of the American Society of Agronomy):

"There are few countries in the world in which crop yields per acre are so high as in Japan, or in which they increased more within recent historical times. Moreover, there are few in which research has played a more important role in promoting greater production".

"As in most countries, increases in yields in Japan have been brought about by a number of factors, including especially improved culturable methods, the extensive use of commercial fertilizers, better control of insect and plant pests, and better varieties."

"Only about 16 per cent of the land area in Japan, or about 15 million acres is cultivated. The cultivated land is divided among 5.7 million farms, averaging 2.5 acres each. About one-third of the land is double or multiple-cropped, so that nearly 20 million acres of crops are grown annually on the 15 million acres of land."

The cultivated land consists mostly of coastal plains and narrow river valleys extending up into the mountains."

Mechanization is limited to a few electric or gasoline motors for pumping water, operating small threshing machines, and similar jobs. Only about two-thirds of the farmers have a draft animal, either a cow or a horse. Except ploughing and preparing the land, most of the work is done by hand, much of it by women and children. Some of the land also is prepared by hand. Grain is cut with a sickle, tied in small bundles, and usually threshed by flailing or with a small threshing machine. The most complicated machines to be seen on a Japanese farm except for a few motors, are these small threshing machines, consisting essentially of a wooden cylinder with wire loops for teeth, set a frame, and operated with a foot pedal."

"Soils generally are poor in natural fertility. High levels of production have been attained and are maintained by the use of large quantities of commercial fertilizers, both organic and inorganic, by ploughing under green-manure crops, and by returning to the soil crop residues and manures of all kinds."

"Plant diseases are widespread and would take a very heavy toll were it not for the extensive use of fungicides and other control measures. Even so, the losses are very considerable. Insects, especially the rice-stem borer and leaf hoppers, cause heavy losses."

"The average annual yield per acre in pounds for the various crops are as follows:—

Crop.	Yield per acre in pounds.
Rice	2,671
Wheat	1,696
Vegetables	10,640
Mulberries	68.7
Hull-less barley	1,751
Common barley	1,934
Soyabeans	885
Sweet potato	10,889
Irish potato	9,526
Oats	1,185
Red beans	834
Rapeseed	1,024
Buck wheat	776
Foxtail millet.	1,265
Maize	1,322
Tobacco	1,675
Tea	1,215
Barnyard millet	942
Proso millet	937
Flax	228: 238*
Sugar beets, sugar	1,883
Hemp.	1,060

*228 pounds of flax seed, and 238 pounds of fiber.

35. During the 65 years period, i.e., from 1878-1942, acreage has increased by about 25 per cent., yield per acre 70 per cent. and total production 113 per cent in respect of rice. Two factors appear to have been primarily responsible—the use of commercial fertilizers and better varieties. In respect of wheat, acreage has increased by 119 per cent., yield per acre 140 per cent and total production 425 per cent. Here also, the increases in yield per acre appear to be largely due to the development of superior variety and the use of commercial fertilizers. It would be difficult to cite an example of a contribution of science to agriculture. That is more striking than is provided by the improved methods of producing silk in Japan. Certainly, there are few agricultural industries that have profited more from research or in which success has depended so much on research. A careful analysis of the position reveals that whereas mulberries acreage since 1889-92 has about doubled (114 per cent.), the

production of cocoons has increased nearly five times (479 per cent.) and of raw silk more than ten times (1,016 per cent).

36. In a Note prepared by Montonaga Onto, Chief of Research Section in October 1952, the following statement is found:

"Heavy application of fertilizers also accounts for the high yield of the Japanese agriculture. Japanese farmers probably use more fertilizer than farmers in any other country. In Japan, the standard application of fertilizer including farm supplied manure for rice on one hectare is 94 Kgs. of Nitrogen, 75 Kgs. and 86 Kgs. of the three elements are respectively applied."

37. The development of Co-operatives in Japan is interesting and highly instructive. I, therefore, obtained an outline of the Agricultural Co-operative Movement in Japan prepared in December 1953 in English. This is given as *APPENDIX IV*, but the following points are worthy of serious note:

At first, the Co-operatives were mainly established for the purpose of helping the farmers out of heavy debts. But afterwards the general purpose of co-operatives were gradually developed. In 1908 a Central Union as well as a Union of Co-operative Federations which were established for the development of the co-operative movement, were recognised as a result of an amendment of the law in that year. The Union was a real Central Organization of the co-operative movement as a whole in the country. National Co-operative Congress was held annually under the auspicious of the Union and many important policy matters were decided and commended officially. Various kinds of National Co-operative Federations like Japanese Silk Marketing Co-operative Federation (1913), the National Purchasing Co-operative Federation and Central Co-operative Bank (1923) were established. The National Rice Marketing Co-operative Federation was established in 1931 and Japanese Orange Marketing Co-operative Federation in 1934.

Since 1931 Government control was strengthened and an amalgamation of various kinds of farmers' organizations was considered necessary in order to control agricultural production. Similarly, one Federation was established in each Prefecture. In each town and village one local agricultural association was established and farmers

were forced to belong to it by the Agricultural Association Law. According to the recent statistics of the Ministry of Agriculture and Forestry, there are 34,907 local co-operatives, 818 country federations, 316 Prefectural federations and 25 National Federations at the end of March 1953. I am sure you will note the number of members who belong to the Co-operatives and the part women are playing in the development of the co-operatives. For the rest I refer you to the note which I give *in extenso*.

38. Along with other notes and literature, a pamphlet "Five Years' Record of Rice Competition in Japan" was also published. I am reproducing the general remarks as APPENDIX V, which will give you an idea, both of the organisation as well as the yields. More specifically, the following table will give you the one year's record in each of the years 1949-1953 along with average production per quarter of an acre of brown rice by way of average of the Region and average of Japan. The figures are given in kilograms which is equivalent to 2.2 lbs. A 'tan' is equal to very nearly one-fourth of an acre.

PRIZE WINNERS & THEIR RECORDS.

"Japan's No. 1 in Yield" in each of 1949-53.

The names and fields are shown in following table.

Table 1.—Records on "Japan's No. 1 in Yield" 1949-53 with comparisons.

"Kilograms per 'tan', of brown rice."

WINNERS' RECORD.					Average of Region's.	Average of Japan
Year.	Region	Prefecture	Name	Yield.	No. 1.	
1949	Hokuriku	Nagano	T. M. Mayeza.	766.0	624.5	311.6
1950	Shikoku	Kagawa	J. Nishimura.	777.0	696.3	317.9
1951	Hokuriku	Toyama	T. Dohi.	857.7	748.4	297.3
1952	Shikoku	Kagawa	Y. Okawa.	919.8	792.5	327.6
1953	Kyushu	Fukuoka	I. Tarumi.	875.1	764.3	271.1

The record yield of Mr. Y. Okawa of 919.8 kilograms per 'tan' in 1952 was 2.8 times Japan's average of the year.

39. It was a long time back that I had perused a summary of a report by Dr. M. B. Ghatge, then Joint Director of Agriculture (Extension), Bombay State, but now Agricultural Marketing Adviser to the Government of India. It is based on his study tour to United States of America and Japan under the auspices of Ford Foundation from August to October 1952. I had intended to circulate this summary many months back but somehow the papers seem to have been misplaced. As the contents will disclose, Dr. Ghatge had looked at America and Japan from the point of view of the State of Bombay, whose representative he then was. But that does not make any difference to many important points to which he has drawn attention. I think a perusal of this summary would be interesting apart from adding a few facts about the conditions, both in U.S.A. and Japan (APPENDIX VI).

40. I have already indicated what steps were taken since the Farmers' Conference at Srinagar. After I wrote the last circular letter to the farmers' representatives, I again contacted a group of M.Ps. interested in Agriculture and farming, and it was then decided that a small Committee of not more than five of them may be able to guide us so far as framing the constitution of the farmers' organization was concerned. The Committee is expected to meet some time during the next session of Parliament which starts on the 15th November. But whatever constitution we ultimately decide upon, it is essential that it should be federal in its structure, which means that each State must organise itself into a unit. As we all know, some States like Hyderabad have already established an organization and some States have formed Advisory Councils of farmers at various stages. I was glad to receive from the Government of Bombay a circular they issued on 3rd September, 1954, to all Collectors, Project Officers, Heads of Departments, Secretariat Departments, and Prant Officers of National Extension Service Blocks. I am sure a perusal of this circular may be of interest to you, and I am, therefore, attaching the same as Appendix VII. I would be glad to know your view about it. I am requesting you to do this in order to find out if this may serve as a model for other States with or without modifications, or whether you would like to evolve your own separate pattern.

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41. I am happy that my friend Shri Bhaktavatsalam is keeping up his great interest in these circular letters, and has contributed another nice one to be included in this present circular letter for the month of October. I must once again **acknowledge with thanks** the trouble he takes and the information and guidance he supplies through his highly useful and interesting letters. There are a few others also which have been included in Appendix VIII.

42. It was on the 12th February, 1954, that I had asked for a brief statement on the utilization of the forest waste. I had also directed that the statement should give the extent to which forest waste is utilized and the way in which it could be utilized in future. In addition, I called for information whether apart from leaves and wood there have been any investigations to utilize such forest fruits as Ber, tamarind, custard-apple, etc., and whether any research to ascertain their food value and also of their by-products. I enclose herewith as Appendix IX a note prepared by the President, Forest Research Institute, dated 30th June, 1954. On this I desired to know the results of the researches in this connection carried on by the Central Food Research Institute, Mysore, and the Nutrition Research Laboratory, Coonoor. The position reported by these two Institutes is given in Appendices X and XI.

Yours sincerely,
P. S. DESHMUKH.

To

All State Ministers of Agriculture,
Co-operatives,
Forests, etc.

APPENDIX I

Inaugural speech of Dr. Panjabrao Deshmukh, Minister for Agriculture, Government of India on the occasion of the Xth meeting of the Tamil Nadu Co-operative Conference on 3rd October 1954.

I am grateful to you for the honour you have done me in asking me to inaugurate the Xth Tamil Nadu Co-operative Conference. My faith in Co-operation dates much further back than before I ever became officially connected with it. I have found it the only philosophy which makes life meaningful to me and which holds promise for the future of mankind. For, I firmly believe that in its true realisation will lie the final resolution of all conflicts and the attainment of abiding peace both for the individual as well as for all nations. This cannot but be so, because co-operation means working together differently, which implies the capacity to live and to help live in the full enjoyment of knowledge born of understanding. It is thus in profound amity with the very essence of our religion which teaches us that truth is everywhere and in everything, that giving as part of gaining, that there need be no irreconcilable contradiction between moral righteousness and material prosperity. Co-operation accordingly does not discard totally either capitalism or socialism; it borrows the form of the one and the content of the other and from out of the best in both the worlds creates a new world of harmony and fellowship wherein the individual finds his full personality in mutual service and collective action. By making service and use the basis of individual gain, it removes the cause of divergence between ends and means, between private morals and business ethics, between individual interests and collective welfare.

2. Our country needs such a philosophy and such a course of action now more than ever. We are endeavouring to re-build our whole national edifice on the basis of co-prosperity and social and economic justice. This implies the necessity of planned concerted action in fields which so long had been the domain of warring private interests animated by acquisitive greed. There is to be

"great enlargement of the powers of production", but this is to be so arranged as not to lead to the enrichment of the few, but to the welfare of the many. Everyone is to have equal access to work, wealth and leisure; the vast apparatus of political and economic machinery is to function through and in the interests of the common man, the tiller of the land, the small cottage worker, the factory operative, the humble men and women of the village whose interests till now had been uncared for.

3. These small individually weak units are to be brought together into strong cohesive organisations, self-managed and self-regulated, on which will rest the columns and frame-work of free Democratic India. It is their needs and desires conveyed to central organs through appropriate federal organisation that would form the content of the national plan, and it is through them that the plan would be put into operation. Thus, by making these small self-governing units the very basis of the political and economic structure, "the origin and the exercise of power", as Dr. Fauquet remarked, "is located at the very origin of needs, and man remains his own master and the organisation his servant". It is the energy of the millions released through these institutions that is going to transform the social and economic life of the whole country and convert it from a land of scarcity to one of abundance both in material and the moral sense.

4. It is this pressing need which lends a measure of urgency to many of our plans. Time does not allow us to make our decisions slowly and move forward at a leisurely pace. Events all around are moving fast: new values are being created: new forces are being unleashed placing material resources at men's command which, if improperly used, might prove of incalculable harm to the peace and happiness of the world. Ideas are bursting the bounds of old traditions and old modes of expression, and if outlets are not provided for them in forms of understanding which will make for orderly progress and disciplined action, they will erode into forms of conduct, which might jeopardise the very basis of society. We have, therefore, to take account of these facts and move quickly so that people will have ready to hand institutions and forms of enterprise which would provide them with full means of expressing themselves without undermining the basis democratic thought and action on which we pin our hopes of the future.

5. In our own way, we have set afoot vast plans of development in all directions. Active steps are being taken to organise Agriculture on scientific lines, as enjoined by our Constitution, and the whole of rural life is being geared to a higher standard of objectives and attainment through projects depending largely on the effort of the community itself for self-improvement. The structure of agrarian relationship, which had so long hampered progress, is being rapidly altered in the interests of the men and women on the soil. All these are creating new aspirations and generating fresh incentives for moral and material advancement. It is, therefore, of the utmost importance that peoples' institutions should be built up as rapidly as possible, which would afford them the means to secure their economic and social objectives within a measurable period of time.

6. I am very happy to find that Madras in this respect holds an enviable position in the very fore front of the co-operatively advanced States in the country. About 50 years ago the pioneer of Co-operation in this country, Sir Frederick Nicholson, pleaded in his monumental report that salvation of rural India lies in the organisation of small co-operative Societies "where the isolated learn the value and powers of association; where the ignorant are taught the lessons of business, the reckless learn needfulness, thrift and prudence; the idle and intemperate return to industry and sobriety, where the prudent, the sober, the skilful and the well-to-do unite with the poorer and weaker brethren in an association of mutual help and insensible self-development". Since Sir Frederick Nicholson made his report, in this State Co-operation has advanced rapidly and has ramified itself into a variety of activities covering almost every economic need.

7. In credit, consumers' stores, milk supply, housing Madras, together with Bombay, can take justifiable pride in being well in advance of the rest of the country. The number, membership and working capital of the Societies in the State have grown considerably, thanks to the prudent management and selfless work of co-operators with long tradition in business integrity, financial rectitude and vigilant supervision, with the sympathetic co-operation of the Government. In the field of credit, with your more than 17,000 agricultural credit primaries, 31 Central Co-operative Banks, with the State Co-operative Bank, one of the earliest of such banks in the field, at the top, the movement is in an exceedingly strong position. Madras of all the States, I should say, has endeavoured the

most to keep up the self-help nature of the organisations, and your apex and central co-operative banks have managed to maintain their sturdy independence both in securing their necessary finance as well as in the conduct of their business.

8. In many respects, Madras has kept up the precepts of the early preachers of the Movement, in its adherence to unlimited liability (though it is not as strong now as before, yet stronger than any other State, in the principle of one village one society, in the belief that multiplicity of functions might not always be good for the small village co-operative (though in this respect too, it is gradually making concessions to the pressure of general opinion and has started organising multi-purpose village societies). Perhaps the strength of the Movement in the State is due not the least to this element of caution displayed by those in charge of it and the determination to hasten slowly in spite of pressures from all directions to accelerate the pace.

9. I cannot but commend in the highest term the progress so far achieved in the State and the glorious part played by the unofficial co-operators and the Government in helping to build up the organisation on such a sound and prosperous footing. But I cannot help feeling that a time has come when the Movement has to step more briskly forward in all directions in order to be able to play its full part in the economic and social regeneration of the society.

10. So far, I have said a number of flattering things about the co-operative movement and the co-operators in the State of Madras. Unfortunately however, there is another side to this picture also. The number of Societies organized in recent years is very large indeed but here also I would like to apply the same test as I mentioned in my recent speech at a meeting of the Executive of the All India Co-operative Union in New Delhi, namely, to what extent has the movement become a live force so as to affect for the betterment of the economic life of the people? How many of these 25,850 Societies you had on your roll in 1953 are active societies in the sense that the members take a vigorous and intelligent interest in their day-to-day working, and the societies satisfy the major economic needs of the members fully and promptly? What percentage of the requirements of the villagers are actually met by these Societies even in the limited field of credit? Are the primaries loyal in the limited

organisations and do the district organisations give their full custom to the apex institutions?

11. I find from the figures given for the Madras State before its division that deposits from members of primary agricultural credit societies have fallen of late. Perhaps the agriculturists are using a larger part of their own money in their undertaking, and this might in part explain the fall in the total loans issued to members in 1952-53 as compared with the previous two years. Madras has been having a series of years of drought and famine in some districts and this no doubt has affected the repaying capacity of the members and led to an increase in overdues. I am glad, however, that measures are being taken to carry out an intensive examination of loans in indebted societies and to revive dormant unions. I am however, more concerned with the fall in the number of co-operative marketing societies, the decline in their paid-up share capital and in their total transactions in 1952-53 as compared with the previous two years. This in part might perhaps have been due to the imposition of controls on essential agricultural commodities; but now that controls have been lifted, marketing has become a crucial problem and unless the productive use of credit is reflected in increased surpluses and these surpluses are marketed through organisations controlled by and directed in the growers' interests, much of the gains in production would go only to fatten the pockets of middlemen. Both production as well as credit have, therefore, to be organically linked with marketing, and every endeavour has to be made to strengthen and expand co-operative marketing of agricultural produce through appropriate federal organisations. I am certain that unless marketing societies, unions and federations are put on an efficient basis, much of the good work done on the credit and production side will fail to bear fruit and many of these societies might ultimately come to grief. If credit is to play its full part in assisting and improving production, emphasis on security will have to shift more and more from land to its produce, not merely to ensure effective recoveries of loans, but also to provide incentive to produce more.

12. I have gone into some of these uncheerful aspects of the movement not in a spirit of disparagement—actually—I feel that your achievements in most directions are far more than most of the States in India—but solely with a

view that we may gird up our loins for more strenuous activity in the years to come. Many of you would probably feel that I am harping too much on the darker side of the movement, and you may even attribute this to insufficient appreciation of the good points and the success achieved by the movement. This was not my intention either when I addressed the All India Co-operative Union, or at the present moment. The reason why I have taken pains to place the correct picture before all of you, as indeed I said in my Delhi speech, is because I have every desire to build up this movement as fast as possible. But, it will be worth while doing so only if we take care to consolidate our foundations.

13. Before embarking on a vast expansion we must examine the weaknesses from which we suffer. Only then would we avoid the mistakes which we have already committed and have been suffering from and would be able to justify our enthusiasm for rapid progress. I may make my intentions a little clearer. Supposing within a short time I decide upon undertaking the responsibility of inter-State co-operative marketing of foodgrains and other agricultural produce, can I rely upon the primary producer and his co-operatives to deal fair with me so that I would be able to benefit him on the one hand and benefit the consumer on the other? If any scheme or proposal of this nature were to fail because of the usual unscrupulousness to which we are so much accustomed, would there be any hope of our proceeding further? It was for this reason that I laid so much emphasis on the need of integrity in our dealings and an amount of caution and care that we will have to exercise. Actuated by these large objectives, I have on two occasions indulged in searching our own hearts and laying bare the difficulties and handicaps from which we will suffer. Of all States, I believe the State of Madras is much more able to deliver the goods than many others, and I have no doubt what I have said in respect of the Cooperative Movement in the State will go to strengthen it still further and make good the fall that is indispensable in some respects. I may also add that the falling back is not wholly the fault of the cooperatives; the circumstances under which we live also has considerable bearing on them, whether I refer to the movement in Madras or the wholly country. But what I meant, and here also mean to suggest, is that the movement should at no time try to live and depend upon supports which are of a transitory nature. It is this realization that I wanted to bring home both in New Delhi and here. Much, no doubt has

been done, but very much more still remains to be done to leave up the teeming millions of this country to anything like the standard of life obtaining in the advanced countries of the world where it is repeatedly being brought to my notice. Co-operation alone has been responsible to add to the country's material prosperity. While entertaining legitimate pride in our achievements already made in spite of many handicaps, we should not allow ourselves to rest on our oars and take it easy in the crucial years ahead.

14. As I stated earlier, on the success of this Movement more than on any other single factor rests the future of this country. It is no good saying to ourselves that co-operative banking cannot deviate from the accepted canons of banking and that so far as this State is concerned the credit side of the movement has covered all the credit-worthy from the banking point of view. If Co-operation has only this much role to play and can give only to those who already have, its usefulness would continue to be for ever limited. The whole problem of credit to Agriculture has to be viewed in the context of the overall development needs, and loans have to be geared to the purpose more than to the person who requires credit. It is, therefore, not merely the present credit-worthiness of the borrower but his potential credit-worthiness which, in a developing economy, should form the basis of loans.

15. The Government of India are anxious that want of finance should not stand in the way of agricultural improvement, and with that object in view, have declared their willingness to supplement the resources of your co-operative banks and State Governments with funds for medium and long-term purposes, which are the fields where scarcity is mostly felt. It is also necessary that Co-operation should be manned and directed by persons well-versed in the co-operative ideology and practice, and accordingly the Government of India, in collaboration with the Reserve Bank, have launched a comprehensive programme of co-operative training and education covering the needs of all categories of personnel required to run the movement.

16. I am also endeavouring to organise an All-India Co-operative Marketing Board to ensure to the grower a fair return for his produce through a network of primary and State Co-operative Marketing Societies federated eventually into a Central Co-operative Marketing Organization.

I want to associate co-operative leaders more and more with the formulation of agricultural policy and the administration of national development programmes, and I am therefore, thinking of forming an All-India Co-operative Council to advise me on all matters pertaining to co-operative improvement in the country. In all these, I look to Madras as the premier State in co-operative development to lead the way and to strengthen my hands in the task I have set myself to do.

I wish your deliberations every success.

APPENDIX II

SUMMARY OF THE REPORT OF THE FOURTH SESSION OF THE INTERNATIONAL RICE COMMISSION HELD IN TOKYO, JAPAN, FROM THE 11TH TO 19TH OCTOBER, 1954.

The Fourth Session of the International Rice Commission was held in Tokyo, Japan, from the 11th to 19th November, 1954. The Indian delegation was led by Dr. P. S. Deshmukh, Minister for Agriculture and included Sari S. S. Roy, Agricultural Extension Commissioner with the Government of India, Dr. N. Parthasarathy, Director, Central Rice Research Institute and Shri M. S. Pawar, Paddy Specialist, Hyderabad State, as members of the delegation. Prof. N. G. Ranga also attended the concluding session of the Commission. Shri S. C. Roy acted as the member-Secretary to the delegation. Delegates from Australia, Burma, Cambodia, Ceylon, Cuba, Egypt, France, Indonesia, Iran, Italy, Japan, Korea, Laos, Netherlands, Pakistan, Philippines, Thailand, United Kingdom, United States of America and Vietnam also participated in the fourth Session of the Commission.

At the opening session of the Commission, the delegates were welcomed by His Excellency Taketora Ogata, Prime Minister *ad interim* and Minister for Foreign Affairs *ad interim*. The delegates were also addressed by His Excellency Shigeru Hori, Minister for Agriculture and Forestry and by the Vice Minister for Health and Welfare, His Excellency Chujiro Kimura. Mr. W. H. Cummings, Regional Representative of the FAO reviewed briefly the development of the International Rice Commission. Dr. Ralph W. Philips, Deputy Director of the Agriculture Division of FAO served as temporary Chairman till the Chairman was elected and referred to the significance of the activities of the International Rice Commission in fostering International Collaboration.

At the first plenary session, the delegates elected Dr. Seiichi Tobata, of the Japanese delegation as the Chairman of the International Rice Commission. Dr. P. S. Deshmukh, the leader of the Indian delegation was elected the first Vice-Chairman and Dr. W. M. Clyde of the U.K. Delegation second Vice-Chairman. All these elections were unanimous.

The International Rice Commission, during its Fourth Session heard detailed reports on the activities of the working Party on Rice Breeding and the Working Party on Fertilisers. Besides these, technical reports on (i) soil water-plant relationships, (ii) mechanisation of rice production, (iii) reducing losses in rice through improved operational methods and (iv) use of rice fields for fish culture were considered. The brief details of discussions with respect to these items are given below:—

(i) *Working Party on Rice Breedings*.—The Party consisting of about 40 delegates from about 15 Governments began their work from the 4th October, 1954, and continued till the 9th October, 1954. The Indian representatives consisted of Dr. Parthasarthy and Shri Pawar. Discussion mainly centred on the activities of the International Rice Hybridisation Project which is the best known of the co-operative activities of the working party. The Project was undertaken in order to fill a significant gap in the types of rice varieties that are available in the major rice growing areas of the world, namely the tropical rice growing areas where extensive fertiliser use is limited or not much prevalent. In recent years fertilisers are being utilised more and more by the farmers in these tropical regions, and it is felt that this practice should be linked with a corresponding use of varieties capable of showing their best from adequate use of fertilisers. In order that such varieties may be developed, the project for the hybridization of *Japonica* and indica varieties was taken on hand. From the painstaking observations made so far, especially by the Japanese investigators, it has been categorically established that breeding itself under high fertiliser conditions is essential for the successful evolution of varieties responsive to high fertiliser doses. The working party commended the Government of India's generosity in providing necessary facilities at the Central Rice Research Institute at Cuttack and in providing the technical assistance of the Director of that institute for the operation of the initial hybridisation and growing of the first generation hybrids. The working party stressed the need for financial and technical assistance and requested participating Governments to explore avenues for providing such assistance.

Maintenance of genetic stocks of rice as a source for breeding material also forms part of the activities of the working party. Working of this scheme was discussed. The countries participating in this scheme are India, Indonesia, Japan, Pakistan, and U.S.A and this Plan was

successfully launched in 1954 under the technical supervision of the Director, Central Rice Research Institute, Cuttack, India.

The Working Party discussed at length the seed multiplication and distribution schemes of the various member countries and noted with interest the facilities provided by India in the shape of special supervisory staff, premia, interest free loans and special storage accommodation to seed producers. The working party brought home the point that the Governments should not regard seed schemes as business propositions but should be prepared to bear any losses arising through a sudden fall in prices.

The shortage of trained technical personnel has been pointed out to be the major impediment hampering all these programmes.

(ii) *Working Party on Fertilisers*.—The Fourth Meeting of the working party on Fertilisers was held in Tokyo, Japan, from 4th to 9th October, 1954. India was represented by Shri S. C. Roy, Agricultural Extension Commissioner with the Government of India. In all 30 representatives of 15 Governments participated in the deliberations. The working party noted with appreciation the encouraging trend towards large usage of fertilisers for paddy by India. India's proposal to increase her present nitrogen capacity by about four times and her phosphorous fertiliser capacity by about 17 times before 1961 was considered by the Working Party as the most dramatic action by the Governments to step up fertiliser production. The various incentives provided by India for the greater use of fertiliser was also commended by the Commission. Notable among the facilities provided are:—

- (a) reduction of price of phosphate fertilisers by 25 per cent.
- (b) equalisation of railway freight charges on an All-India basis.
- (c) Fixation of the pool price of ammonium sulphate on the f.o.b. railhead destination price.
- (d) arrangements for credit facilities through co-operative societies and short-term loans through State Governments; and
- (e) 50 per cent subsidy for the multiplication of green manure seed.

The Working Party discussed the need for use of methods that would most clearly and most accurately show the increase in yield due to fertiliser treatments.

The Party was also apprised of India's village improvement programme envisaged in the 5-Year Plan and the spectacular results already achieved through the country-wide organisation of an effective National Extension Service.

Discussion on the experiments carried out in India on the application of ammonia directly to the soil revealed that this form of nitrogen proved to be the cheapest and that no expensive equipments were needed for its application.

(iii) *Soil-Water-plant relationships*.—It was agreed that Governments should designate workers in this field for a detailed consideration of the problem.

(iv) *Mechanisation of rice production*.—Increased importance was attached by the Commission to the careful analysis of the cost of introducing and maintaining mechanised farming under the rice growing conditions of peasant farmers. Studies on devices used for lifting water and determining the comparative costs of installation and operation of these devices as also selection of representative areas for determining labour and power requirements need to be taken up by Government.

The Japanese Ministry of Agriculture and Forestry in collaboration with the Ministry for International Trade and Industry organised a very fine exhibition of all types of equipment manufactured in the country, for use in irrigation, tillage, seeding, cultivation, harvesting and thrashing operations connected with rice production.

The attention of delegates was drawn to the need for providing an environment in which equipment manufacturers' local dealers can operate effectively in countries that are introducing mechanised methods in farming.

(v) *Reducing losses in rice through improved operational methods*.—The Commission recorded its view that these problems are of great importance to the Commission and its Member countries. The Commission, therefore, recommended to the Director-General the establishment of an *ad-hoc* technical group to look carefully into the various aspects of processing and storage and to indicate the lines along which action might most profitably be taken by Member Governments and Commission.

(vi) *Use of rice fields for fish culture.*—It was decided that these be considered in detail in the Fifth Session and that programmes should be discussed by *ad-hoc* groups of the FAO in the meanwhile.

The main contribution that India made to the Tokyo Session of the Commission was to outline in detail the steps that were taken in 1953-54 to promote the country-wide campaign for stepping up rice production. Full details of the technique adopted, the execution of the campaign step by step and the achievements in increased yields per acre in the various States were given for the Commission's information. The names of the first six record producers in each rice growing State under the campaign along with the per acre yields which they reaped were also given. The Commission were impressed by the achievements India made in 1953-54. The Leader of the Delegation addressed press conferences and answered many questions both at the sittings of the Commission and outside these sittings relating to the details of India's technique for stepping up rice production. Films, Filmstrips, propaganda material and other audio visual aids utilised in the campaign were also shown and were appreciated by the various other delegations. The country's plans and programmes for stepping up fertilizer use were also given in detail. The Commission received with appreciation an invitation from the Government of India to hold its 5th session in India in 1956 and recommended that the Director-General should make arrangements with the Government of India for holding the session in India some time during the last three months of 1956.

APPENDIX III

BY ADAPTING A SIMPLE JAPANESE METHOD OF RICE CULTURE,
INDIAN FARMERS ACHIEVE WORLD-RECORD YIELDS—AND LIFT
THEMSELVES OUT OF THEIR AGE-OLD FATALISM

India's Rice Revolution

Condensed from The Christian Science Monitor Suresh Vaidya

Laxman Mali, of Nasik, western India, gazed open mouthed at the ripening rice. He had been a farmer all his life, but he could not recall a single year when his crop had been so unbelievably big. Later, when the harvest was in, the Ministry of Agriculture at New Delhi informed him that he had beaten the world's paddy record with 17,500 pounds per acre. Never before had any man gathered that much rice from his land.

Overnight Laxman Mali became a national hero. Not far behind him, however, were 33,099 other Indian rice growers whose produce last year made history, with yields ranging from 8,000 to 14,000 pounds to the acre. This was not just sensational news but a vital national contribution to India's rice-eating, perpetually rice-short millions.

The record yields resulted from using, on the richer soil of India, a simple method of sowing and planting learned from Japan. The new method requires the Indians to use no new implements no completed techniques the one special requirement is a small amount of chemical fertilisers, available on loan from the government if necessary.

From the national point of view, what the new-method farmers produced was phenomena: an additional million tons of rice. For 50 years India had imported two million tons of rice annually, mostly from Burma. Now rice imports for her immediate needs have been stopped, and she is looking for a foreign customer to take some of her fine quality rice.

Like many revolutionary events, the innovation came about through accident, Paranal Kapadia, a businessman from Bombay, had lived in Japan for 18 years, exporting silk and machinery. In 1941, at outbreak of war, he had

to leave Japan. Back in India he enlisted in the cottage industries movement of Mahatma Gandhi and was made secretary of Kora Gramudyog Kendra an institute near Bombay. Thirteen of the institute's 28 acres were devoted to rice cultivation: here Kapadia learned something about growing rice.

He was about to return to Japan in 1948 when a typhoon hit the Bombay region, leaving the rice crop floating in the fields. It was a severe loss for the institute. When Kapadia arrived in Japan he told a banker friend of the havoc. The banker asked, "Have you ever heard of a Japanese rice crop being lost through typhoon?" Kapadia hadn't.

"The grain must not touch water", the banker explained. "Your problem is to help the stalks stand up by stringing a line for them to rest on." Why hadn't such a simple thing occurred to rice growers in India, Kapadia wondered.

The following October, when Kapadia was back in India, another typhoon flattened Kora Gramudyog Kendra's paddy crop. Kapadia led his co-workers into the field, stuck bamboo poles on either side and stretched a line between them. But the plants were not in straight rows—in India sprouts are transplanted thickly and at random. Kapadia rummaged among the prostrate plants, "found four that were in line, rested them against the string. A week later these four plants were dry and healthy, their grains intact. The rest of the crop had perished.

Harishchandra Patil, a graduate in agriculture of Bombay University and a farmer, was impressed by the demonstration. The following year both he and Kapadia transplanted their rice in straight rows, Japanese style. The yield doubled!

To learn more about the Japanese method, the Bombay state government sent a delegation to Japan in 1952, of which Patil and Kapadia were members. They rented a half acre of land and arranged for instruction by Dr. Iwao Kamo, a well-known paddy expert.

Dr. Kamo taught them to select their seed by dipping it in salt water. Only the heavy seed that sank to the bottom was retained. This was then washed in a bacteria-killing solution and dried in the shade—not in the sun—so that it was ready to germinate when sown thinly. One pound of seed was allotted for their half acre, in contrast to as much as 3000 pounds per acre sometimes required for thick Indian sowing.

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Manure was given to their plot not all at once but in instalments, so that—as Dr. Kamo explained—“the plants aren’t overfed first and starved afterward.” Three weeks later when the sprouts were four inches high, Dr. Kamo gave transplanting instructions: “Plant them ten inches apart, each way. The plants need that much space to attain maximum growth.”

Every fortnight they walked between the ten-inch rows, weeding and mixing manure carefully with the soil. When the crop matured it equalled the Japanese yield: 2000 pounds for their half acre—more than five times the Indian average.

Upon their return to India, Patil and Kapadia adapted the Kamo method to Indian soil, which is richer than Japanese. They reduced the amount of manure used in Japan by seven-eighths, made up the difference with compost. They planted not two pounds of seed to an acre, but eighth. They handled everything else as Dr. Kamo had outlined.

When the harvest came Kapadia gathered 8000 pounds to an acre, Patil 12,000. Fifteen hundred other farmers who had followed their example reported similar results.

Kapadia and Patil showed government experts a film they had made of the new method in operation. The Minister for Food & Agriculture, Dr. Punjabrao Deshmukh, himself of peasant stock, was impressed by the scheme. He ordered a countrywide campaign to publicize it.

In the spring of 1953 the Ministry of Agriculture distributed truckloads of illustrated pamphlets in 75,000 villages. Whenever possible, movie vans, with teams of explainers, showed the method on film. Thirty-four thousand Indians joined the experiment.

The monsoon season of 1953 was the do-or-die-test. The new method emerged triumphant in every respect. This year rice was taken off the ration list, and the price began to slide for the first time in 12 years.

This past summer two million acres of India’s paddyland went under the new system—only two million because there weren’t enough demonstration teams to go round. But it is sure to go on spreading, all over India’s 75 million acres of paddyland.

"The new method has revealed to us the potential of the Indian soil", said Dr. Deshmukh. "We shall exploit it to the full."

Most important is the effect the programme is having on the Indian farmer himself. Always he has eked out life on one meal a day and regarded poverty as a divine phenomenon. Now that is changing. Ambitious self-confidence is sounding the knell of traditional fatalism.

APPENDIX IV
OUTLINE OF THE AGRICULTURAL COOPERATIVE
MOVEMENT IN JAPAN.

Dec. 1953

AGRICULTURAL COOPERATIVE SECTION,
MINISTRY OF AGRICULTURE AND FORESTRY

(I) Before the World War II

It was in 1900 that the Cooperative Association Law was enacted for the first time in Japan. However, there were several kinds of farmers' organizations which could be regarded as a kind of credit, marketing or purchasing cooperatives before that year.

The number of cooperatives established in accordance with the Cooperative Association Law was merely 21 at the end of 1900, but since then cooperative movement made a great progress both in number and business volume.

At first, cooperatives were mainly established for the purpose of helping the farmers out of heavy debts, so most of them were credit cooperatives but afterward increased gradually the general purpose cooperatives carrying on various kinds of business such as credit, marketing purchasing or utilization at the same time.

The Co-operative Association Law was amended for several times according to the development of the cooperative movement, and establishment of a central union as well as of cooperative federations were recognized as a result of the amendment of the Law in 1908.

Before that year, Dainihon Sangyokumiai Chuokai (Japanese Central Union of the Cooperatives) had been established in order to encourage the establishment of the cooperatives, to assist for their management and to make closer the liaison among them. But as it was not an organization established in accordance with the Co-operative Association Law it was reorganized into powerful central union, Sangyokumiai Chuokai (Central Union of the Cooperatives) based upon the Law in 1908.

The members of the Union were every local cooperative and their federations throughout the country. Thus the Union was a real central organization of the cooperative movement as a whole in our country.

The National Cooperative Congress was held annually under the auspices of the Union and on that occasion many important policies concerning the cooperative movement were adopted and at the same time excellent cooperatives and cooperative leaders were commended officially.

The Central Union was a member of the International Cooperative Alliance.

According to the development of the cooperative movement, various kinds of national cooperative federations were organized.

Japanese Silk Marketing Cooperative Federation was organized in 1913. The National Purchasing Cooperative Federation and the Central Cooperative Bank were established in 1923.

The National Rice Marketing Cooperative Federation and Japanese Orange Marketing Cooperative Federation were established respectively in 1931 and 1934.

The National Rice Marketing Cooperative Federation, the Japanese Orange Marketing Cooperative Federation and the National Purchasing Cooperative Federation were amalgamated and became National Purchasing and Marketing Cooperative Federation in 1941.

Thus, the cooperative movement in Japan made a remarkable progress and contributed greatly to raise the living standard of farmers and to develop the agriculture of our country.

The statistics concerning the cooperative movement of our country before the World War II are as follows; (Before the War farmers' cooperatives and urban consumers' cooperatives were established in accordance with the same cooperative law, but following statistics do not include consumers' cooperatives).

Number of local cooperatives in each year from 1900 to 1941.

1900	.	.	.	.	.	.	21
1905	.	.	.	.	.	.	1,671
1910	.	.	.	.	.	.	7,308
1915	.	.	.	.	.	.	11,509
1920	.	.	.	.	.	.	13,442

Number of federations classified according to their business in 1941.

Credit	16
Marketing	24
Purchasing	2
Utilization	25
Marketing and purchasing	28
Marketing and utilization	29
Purchasing and utilization	28
Credit, marketing and purchasing	7
Marketing, purchasing and utilization	68
Credit, marketing, purchasing and utilization	27
TOTAL	254

Business volume of the local cooperatives in each year from 1905 to 1941

(deposit) 1,000 yen				1,000 yen			
1905	423	1930		1,102,573			
1910	7,204	1937		1,747,779			
1915	29,617	1939		3,059,919			
1920	224,320	1940		170,196			
1925	654,901	1941		5,074,665			
(loan) 1,000 yen				1,000 yen			
1905	1,497	1930		984,476			
1910	11,905	1937		1,061,119			
1915	52,129	1939		1,088,314			
1920	186,188	1940		1,108,478			
1925	531,598	1941		1,204,603			
marketing) 1,000 yen				1,000 yen			
1905	1,351	1930		192,473			
1910	11,276	1937		598,880			
1915	40,777	1939		1,134,138			
1920	126,912	1940		1,897,076			
1925	216,017	1941		2,424,456			
(purchasing) 1,000 yen				1,000 yen			
1905	506	1930		140,157			
1910	7,461	1937		355,271			
1915	28,312	1939		633,375			
1920	157,942	1940		982,134			
1925	160,563	1941		1,046,279			

(1 dollar = 360 yen, 1 pound = 1,008 yen).

(II) During the War

Since the outbreak of the conflict between China and Japan in Manchuria in 1931, a governmental control was strengthened gradually in every field of our country. And it was the same for the agriculture.

The amalgamation of various kinds of farmers' organizations was thought to be necessary by the Government in order to control strongly the agricultural production. Then Agricultural Association Law was enacted in 1942 for this purpose.

As a result of enactment of the Law all farmers' cooperatives were amalgamated with other farmers' bodies and became "Nagyokai" (Agricultural Association).

Thus in each town and village one local agricultural association was established and farmers were forced to belong to it by the Agricultural Association Law.

Similarly, one federation was established in each prefecture. The local agricultural associations and their prefectural federations carried on many kinds of business such as credit, marketing, purchasing, utilization as well as guidance for agricultural production concurrently.

Rice, barley, wheat, potatoes and other farm products which had to be delivered to the Government except those for farmers' own domestic use as well as farm materials distributed to the farmers were handled exclusively by the agricultural associations.

Sangyokumiai Chuokai (Central Union of the Cooperative) was also amalgamated with other national farmers' organizations and became "Chuo Nagyokai" (Central Agricultural Association).

The Central Agricultural Association was organized by all prefectural agricultural associations and its task was to cooperate with the Government in establishing the agricultural policies and putting them into practice, and moreover, to improve the agriculture.

On the other hand, National Purchasing and Marketing Cooperative Federation was also reorganized into the National Economic Agricultural Association in accordance with the Agricultural Association Law.

All prefectural agricultural associations were its members, so they belonged to the Central Agricultural Association and National Economic Agricultural Association at the same time.

The National Economic Agricultural Association took over the business which had been carried on up to this time by the National Purchasing and Marketing Co-operative Federation.

Besides these two national organizations there was Central Cooperative Bank for Agriculture and Forestry.

As the War became severer and strengthening of the government control on the agricultural production was needed, Central Agricultural Association and National Economic Agricultural Association were amalgamated and "Senji Nogyo'dan" (War-time Agricultural Organization) was established by the order of the Government on June 1945, just before the end of the War.

Farmers were forced to belong to the agricultural association and not permitted to desert from the association voluntarily.

President of local agricultural association was appointed by the governor and president appointed other directors.

In case of prefectural agricultural association, Central Agricultural Association and National Economic Agricultural Association president was appointed by the Minister of Agriculture and Forestry after being recommended at the general meeting and other directors were appointed by the president.

(III) After the War

The World War II was over on August 15th 1945. On December 9th of that year. General MacArthur, then Supreme Commander for the Allied Powers, commanded the Japanese Government in his memorandum to carry out the land-reform in order to free peasants from the feudalistic landlord system.

He also commanded in the same memorandum the Japanese Government to encourage the establishment of the agricultural cooperatives as a means of preventing the peasants who became small-holders as a result of the land reform, from falling again into the grips of tenants.

In accordance with this memorandum the Agricultural Cooperative Association Law was promulgated on November 19th 1947 and put into force on December 15th of that year. Thus agricultural cooperative movement was regenerated.

As we mentioned above, both agricultural and consumers' cooperatives were regulated by the same co-operative law before the War Consumers' Cooperative Associations Law were enacted separately.

According to the recent statistics of the Ministry of Agriculture and Forestry, there are 34,907 local cooperatives, 818 country federations, 316 prefectural federations and 25 national federations at the end of March 1953. In addition to these local cooperatives and their federations there are Central Cooperative Bank for Agriculture and Forestry, National Cooperative Credit Society and "Ieno-Hikari Kyokai" (Home Light Association) which is a national cooperative organization publishing monthly magazines for cooperative members, "Ieno-Hikari" (Home-Light) and "Chijo" (Good Earth).

Out of 34,907 local cooperatives 18,056 are stock cooperatives and 16,851 are non-stock cooperatives. Most of the stock cooperatives, are general purpose cooperatives carrying on various kinds of business such as credit, marketing, purchasing, utilization, guidance and so on at the same time.

Total number of members of 11,659 local cooperatives reported is 6,827,230 at the end of March 1952.

The number of cooperative members is greater than that of farm household which is about 6,000,000. The fact that the number of cooperative members exceeds that of farm household shows that many farmers belong to more than one cooperative at the same time and there are many family members who also belong to the cooperatives.

6,207,666 out of total number of members are farmer members and 619,564 are non-farmer members. Non-farmer members are not given the right to vote.

After the War, rural women have had a great interest in the agricultural cooperative movement, and the number of the cooperative women's leagues has increased gradually.

In 1951, National Liaison Conference of Cooperative Women's Leagues was established.

Besides these cooperative women's leagues cooperative youth leagues have also been organized in many parts of the country.

Local cooperatives usually belong to various kinds of prefectural cooperative federations at the same time, and prefectural federations organize various kinds of national federations in each field of business.

The number of local cooperatives and federations at the end of March 1953 is as follows:

Number of local cooperatives classified according to their business.

(1) Stock cooperatives—

General purpose	13,311
Credit and other business	13,088
Other than credit	223
Sericulture	334
Live-stock marketing	613
Cultivation	1,521
Fruits marketing	86
Tea marketing	36
Fire woods and charcoal	60
Poultry and egg marketing	104
Dairy	580
Others	1,411
Total	<u>18,056</u>

(2) Non-stock cooperatives—

General purpose	1,516
Sericulture	9,923
Live-stock marketing	517
Cultivation	3,604
Fruits marketing	44
Tea marketing	7
Fire woods and charcoal	17
poultry and egg marketing	25
Dairy	88
Others	1,110
Total	<u>16,851</u>
GRAND TOTAL	<u>34,907</u>

Number of country federations classified according to their business

Purchasing	10
Marketing	48
Health	19
Rural Industry	86
Productive	26
Education	22
Soil-improving	1
Sericulture	252
Live-stock marketing	185
Live-stock breeding	19
Cultivation	15
Processing	11
Vegetables marketing	85
Horticulture	
Fruits marketing	
Utilisation	6
Credit	1
Marketing and purchasing	6
Mutual insurance . . . . .	..
Others	26
Total	818

Number of prefectural cooperative federations classified according to their business.

Credit	46
Marketing and purchasing	41
Marketing	8
Purchasing	9
Health	25
Guidance	46
Rural Industry	6
Transportation	5
Live-stock marketing	58
Cocoon marketing	37
Cultivation	39
Others	24
Total	344

National organizations

Principal national cooperative organizations are as follows:

- National Guidance Federation of the Agricultural Cooperative Associations.
- National Purchasing Federation of the Agricultural Cooperative Associations.
- National Marketing Federation of the Agricultural Cooperative Associations.
- National Press and Information Federation of the Agricultural Cooperative Associations.
- National Sericultural Federation of the Agricultural Cooperative Associations.
- National Health Federation of the Agricultural Cooperative Associations.
- National Cultivating Federation of the Agricultural Cooperative Associations.
- National Live-stock Marketing Federation of the Agricultural Cooperative Associations.
- National Transportation Federation of the Agricultural Cooperative Associations.
- National Rural Industry Federation of the Agricultural Cooperative Associations.
- National Dried Cocoon Marketing Federation of the Agricultural Cooperative Associations.
- Japanese Silk Marketing Federation of the Agricultural Cooperative Associations.
- National Dairy Marketing Federation of the Agricultural Cooperative Associations.
- National Insurance Federation of the Agricultural Cooperative Associations.
- Central Cooperative Bank for Agriculture and Forestry.
- National Cooperative Credit Society.
- Home Light (Ieno-Hikari) Association.

Business volume of the local cooperatives and their federations has increased gradually.

Total Amount of deposit and loan of the local cooperatives in each month from January 1951 to August 1952 and that of marketing as well as purchasing of the local co-

operatives in 1952 business year (from the beginning of April 1951 to the end of March 1952) are as follows:

Amount of deposit and loan

Amount of deposit and loan.

1951							Deposit (million yen)	Loan (million yen)
January	.	.	.	.	.	.	153,133	28,183
February	.	.	.	.	.	.	143,789	30,729
March	.	.	.	.	.	.	131,446	35,821
April	.	.	.	.	.	.	124,051	39,995
May	.	.	.	.	.	.	121,103	44,589
June	.	.	.	.	.	.	124,522	48,483
July	.	.	.	.	.	.	127,914	51,482
August	.	.	.	.	.	.	136,062	53,668
September	.	.	.	.	.	.	139,236	55,128
October	.	.	.	.	.	.	156,375	51,092
November	.	.	.	.	.	.	158,682	47,396
December	.	.	.	.	.	.	179,392	41,949
1952								
January	.	.	.	.	.	.	186,439	40,935
February	.	.	.	.	.	.	176,879	45,917
March	.	.	.	.	.	.	170,344	54,014
April	.	.	.	.	.	.	161,528	60,459
May	.	.	.	.	.	.	158,994	66,704
June	.	.	.	.	.	.	162,609	70,916
July	.	.	.	.	.	.	164,148	74,238
August	.	.	.	.	.	.	164,841	77,514
September	.	.	.	.	.	.	166,861	79,814
October	.	.	.	.	.	.	198,057	71,701
November	.	.	.	.	.	.	230,688	64,873
December	.	.	.	.	.	.	235,628	60,383
1953								
January	.	.	.	.	.	.	231,705	60,724
February	.	.	.	.	.	.	223,403	65,978
March	.	.	.	.	.	.	215,000	73,991
April	.	.	.	.	.	.	205,422	82,082
May	.	.	.	.	.	.	204,378	95,799
June	.	.	.	.	.	.	204,378	95,799
July	.	.	.	.	.	.	211,738	105,422
August	.	.	.	.	.	.	211,738	105,422

<i>Amount of purchasing</i>		<i>(In Y1,000)</i>	
	1951 fiscal year's purchase(A)		Rate of purchase through federations (B)/(A)
	Purchase	Purchase on commission	
II,637 co-ops reported	Through federation (B)		
	Total %	Purchase on commission	
Fertilizer	12,781,317	228,825	63,010,142 (50.8)
Food stuff	6,575,909	51,659	6,638,568 (5.3)
Farm machinery	4,349,830	86,344	4,436,174 (3.6)
Insecticide	3,005,487	16,514	3,022,001 (2.4)
Others	7,311,224	172,116	7,483,340 (7.1)
Total	24,034,767	555,458	84,590,225 (68.2)
Food stuff	24,462,638	187,558	24,650,196 (19.8)
Clothing	2,370,509	44,389	2,414,898 (2.0)
Others	12,180,722	264,742	12,445,464 (10.0)
Total	39,013,869	496,689	39,510,558 (31.8)
Grand Total	123,048,636	1,052,147	124,100,783 (100)

Consumer's goods.

Amount of Marketing

(1) Sales of Products Consigned in 1951

(In £ 1,000)

11,640 Co-ops. reported.	Total sales.		Sales through Coops.		Gross profits.	
	Amount	%	Amount	%	Amount	%
Total	241,794,035	100	218,280,154	90.3	3,684,092	100
Rice	165,864,541	68.6	163,351,984	98.5	1,988,468	54.0
Wheat and barley	33,342,412	13.8	32,649,839	97.9	522,696	15.0
Sweet potato and white potato	7,288,170	3.0	4,659,439	63.9	229,305	6.2
Rapeseeds	1,166,265	0.5	892,782	76.6	40,949	1.1
Starch	1,433,753	0.6	571,377	39.8	24,051	0.6
Miscs. grains	3,139,867	1.3	1,604,987	51.1	73,570	2.0
Cocoon	11,335,981	4.6	6,324,342	55.8	186,075	5.1
Vegetable and fruits	6,722,342	2.8	2,676,499	39.8	204,519	5.6
Livestock products	2,700,063	1.1	1,847,379	68.4	81,222	2.2
Forest products	673,088	0.3	205,517	30.6	30,112	0.8
Fire wood and charcoal	2,053,427	0.8	710,600	34.6	77,700	2.1
Straw-ware	1,012,766	0.5	516,617	51.1	32,695	0.9
Others	5,061,360	2.1	2,268,232	44.8	162,730	4.4

(2) Sales of Products purchased in 1951

	Total sales.				Sales through Coops.				Gross profits.	
	Amount		%		Amount		%		Amount	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
11,640 Co-ops. reported.										
Sweet potato and white potato	6,968,361	19.6	3,422,680	49.1	387,787	14.9				
Rapeseeds	830,636	2.3	405,798	48.8	—40,280	..				
Starch	781,807	2.4	725,174	93.9	—79,203	..				
Misc. grains	4,119,883	11.5	3,423,403	83.1	810,539	31.3				
Cocoon	2,486,821	6.9	1,508,326	60.6	18,040	0.8				
Vegetable and fruits	2,486,278	6.9	1,135,253	45.6	101,470	4.0				
Livestock products	1,299,563	3.6	431,085	33.2	120,399	4.6				
Forest products	1,274,322	3.5	301,944	23.7	76,889	3				
Fire wood and charcoal	6,471,838	18.2	1,714,072	46.5	444,024	17.1				
Straw-ware	3,517,781	9.8	1,522,427	43.3	198,258	7.6				
Others	5,469,175	15.3	1,351,763	24.7	552,818	21.3				
Total	35,706,465	100	15,941,925	44.6	2,590,741	100				

The agricultural cooperatives have proved a remarkable increase in number and at present time the network of the cooperatives covers all over the country.

In spite of such a remarkable progress, local cooperatives and federations were influenced greatly by the sudden change of economic conditions in our country; from inflation to deflation, shortage of owned capital and lack of business abilities of the officials and employees who were habituated for a long time to easy management under the government control during and after the World War II.

As a result, 895 local cooperatives were forced to stop or restrict payment of deposit for their members on April 1950.

The number of these cooperatives reached to 846 and 931 at the end of April 1951 and 1952 respectively.

In order to reconstruct the local cooperatives and federations in depression, great efforts are being made for the increase of deposit and capital, rationalization of management as well as education for officials, employees and members.

On the other hand, as a measures of promoting reconstruction of the local cooperatives and federations in depression the Law for Rehabilitation and Reconstruction of the Cooperatives was enacted on March 1951.

And now 2,482 local cooperatives and 124 federations are being given assistance from the Government for their reconstruction.

According to the Law for Rehabilitation and Reconstruction of the Cooperatives, local cooperatives and their federations which want to rehabilitate themselves in accordance with the Law must make out the balance sheet of their own business on the day indicated by the Minister of Agriculture and Forestry (March 31, 1951) and draw up the plan of rehabilitation based upon the balance sheet.

These cooperatives must meet following conditions within five years which begin from March 1951;

- (1) to make liquide the frozen credit which are overdue for more than one year and inventories laid in more than one year ago.
- (2) to accumulate owned capital sufficient enough to cover deficits and fixed assets.

The local cooperatives and federations which are expected not to be able to rehabilitate themselves within five years without receiving special encouragement loan from the Government are given the loan for encouraging the increase of their capital and loan for payment of interest of the frozen capital by the Government.

But the great effort made by the Government and co-operators, rehabilitation of the cooperatives had advanced smoothly.

During and after the World War II, rice, wheat, barley and other farm products were under government control, but as a result of the rehabilitation of agriculture and economy of our country, the government control was abolished except for rice, and as for rice too control has been alleviated recently.

The agricultural cooperatives have handled 95 per cent. of rice 85 per cent of wheat and barley sold by farmers, but as a result of abolishment and alleviation of the government control on staple food, it is expected for the cooperatives to become more severer the competition with commercial dealers.

Under these circumstances, great efforts are being made by the cooperators for strengthening of cooperative marketing in order to overcome the competition with commercial dealers and to protect the interest of farmers.

The agricultural cooperative movement is facing many difficult problems. In this connection, strengthening of cooperative education as well as of guidance for agricultural production of individual members is thought to be more necessary than ever to overcome these difficulties.

APPENDIX V

EXTRACT FROM THE PAMPHLET ENTITLED "FIVE YEARS"

RECORD OF RICE COMPETITION IN JAPAN"

GENERAL REMARKS

Without high yields of rice crops per acre, Japan is unable to produce as large quantity of rice as she needs, nowadays. They are realised only by many rice growers' enthusiastic efforts for the improved and careful cultivation of rice. To encourage many rice growers along this line, the Asahi, the largest newspaper in Japan, has schemed and carried out the Rice Competition in Japan, to commemorate the 70th anniversary of its founding, in 1949. Since the first competition, it has been repeated annually, and has become a major agricultural event in Japan.

Early in 1949 our agricultural authorities believed it important to give special encouragement to farmers so that they would make every effort to increase production of rice. At the time, many farmers were influenced by short-sighted opinions that Japanese agricultural production had lost its significance because their necessary provisions could be obtained at lower prices from abroad with ease. Despite these opinions, however, it became now a real fact that Japan should maximise its indigenous rice production.

The rice yield competition was actively supported by the Ministry of Agriculture and Forestry (MAF) since 1952, and has received increasing attention from the public. MAF obtained an appropriation of 8,000,000 'yen' to support the 1952 contest. To promote the movement a board of directors was formed, composed of representatives of MAF, the Asahi Press, and the National Federation of Agricultural Guidance Cooperative Associations.

The number of rice growers taking part, has risen rapidly. In 1949, 3,500 rice growers participated; in 1950, 13,500; and in 1951, 29,700, about eight times the number in 1949. About 30,000 participated in each contest in 1952 and 1953.

The winning yields have also improved year by year. In 1949 Mr. T. Mayezawa of Nagano Prefecture had the highest yield, 766.0 kilograms of brown rice per 'tan' (8,620

pounds of rice per acre) *; in 1950 it was Mr. J. Nishimura of Kagawa Prefecture with a yield of 777.0 kilograms and in 1951, Mr. T. Dohi of Toyama Prefecture with 857.7 kilograms per 'tan'. Then in 1952 Mr. Y. Okawa of Kagawa Prefecture established the record of 919.8 kilograms in five years' competitions. In Japan 600 kilograms per 'tan' is ordinary considered a very good crop. The national average yield in 1952 was 327.6 kilograms.

APPENDIX VI

REPORT BY DR. M. B. GHATGE, JOINT DIRECTOR OF AGRICULTURE (EXTENSION) BOMBAY STATE, POONA ON HIS STUDY TOUR TO UNITED STATES OF AMERICA AND JAPAN UNDER THE AUSPICES OF FORD FOUNDATION FOR THE MONTHS OF AUGUST TO OCTOBER, 1952.

The United States of America is a very vast country with plentiful resources. It has an area of about 3 million sq. miles, with a population of 151 million souls. The density of population is 51. The precipitation of the country is about 40" on an average. It is well distributed throughout the year. Irrigation is restricted to the desert areas. The cropped area is about 22%, pasture 38% and forest is 40%. The sources of income are raw crops which include food as well as non-food and livestock. Only 16% of the population depend on agriculture. The average size of the holding is 196 acres. The country is highly industrialised. The farms are mechanised. The yield per acre are: Corn, 38 bushels, wheat, 16 bushels, cotton 270 lbs. Farming income ranges between 5 to 7,000 dollars, i.e., Rs. 25 to 30 thousand per year. The livestock population is 160 million. It works to 5 acres of cultivated land per cattle and 13 acres of cultivated and pasture land per head of cattle. The standard of living of farmers is very high. Almost every farmer has an automobile, a tractor, a radio, a telephone, a frigidaire, etc. Each farm house has electricity. Each farm is fenced. The farmer is a member of many farming organisations. In United States of America, price support programmes exist so also credit facilities both short term and long term are provided. The units of administration are Federal, State and County. Counties are autonomous. Literacy is cent percent. Farming is a profitable business and as such it acts as good incentive to increase production.

Japan is a small and picturesque country. It has an area of 143,659 sq. miles having a population of 83 million.

The density of population is 565. The average rainfall is about 40". Rainfall is well distributed throughout the year. The area cultivated is 18% of the total area. The area under forests is 57%. 80% of the cropped area is provided with assured water supply. The important crops grown are foodgrain crops like rice, wheat, vegetables, and industrial crops like Soybeans, Mat Rush, Mulberry, etc. 42% of the total population depend on agriculture. The average size of the holding is two acres. As his holding is small, the Japanese farmer treats it like a backyard garden plot. He adopts intensive cultivational methods and gets higher yields. The average yield of rice is about 3,600 lbs., barley 1,700 lbs. and wheat 1,536 lbs. Agricultural income is about Rs. 1,900. It is supplemented by non-agricultural income to the extent of about Rs. 900. The cost of living is about Rs. 2,500. An average family consists of 6.6 persons. Cattle population is very small. It works to one cattle per 7.3 acres of cultivated land. The standard of living of the farmer is fairly good. There is electricity in every farm-house. Every village has a co-operative stock as well as non-stock. Farmers receive parity price for rice and other marketable crops. Crops are insured. Credit facilities for short-term and long-term are ample. The country is studded with small scale industries. The Units of Administration are national, Prefectural and village. Village is autonomous. Literacy is cent percent.

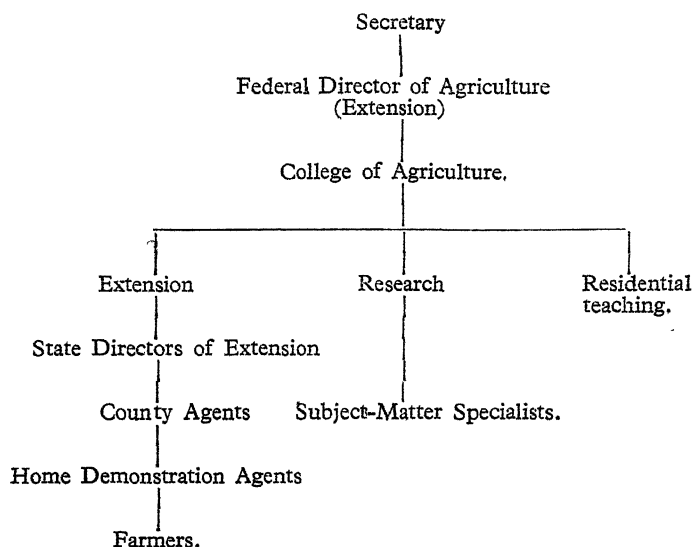
Bombay State has an area of 109,990 sq. miles with a population of 35 million souls. The density of population is 332 per sq. mile. There exists wide diversity in soil and climatic conditions. The average rainfall varies from 100" in the west to 15" in the east. The eastern portion is liable to drought. 58% of the total area is under cultivation, while only 16% is under forests. Only 5% of the cultivated land is under irrigation. Almost all crops are grown, the important amongst which are rice, wheat, jowar, bajri, sugarcane, cotton, groundnut, tobacco, fruit, vegetables, etc. 64% of the total population depend on agriculture. The average size of holding varies from 3 acres in the rice producing area to 50 acres in the famine-stricken areas. The average size for the State is 11.4 acres. The land tenure is Ryotwari, i.e., each cultivator holds his land direct from Government under moderate assessment. Compared to other States in India, Bombay State is industrially advanced. The average yields of crops are low. The yield of paddy is about 900 lbs. of jowar (dry), 150 lbs. of wheat (dry), 300 lbs. The average

yield per acre of irrigated jowar and wheat are about 1,000 and 1,500 lbs. respectively. As regards cattle population, it may be mentioned that per head of bulls and bullocks in the State, there are 8.6 acres of net cultivated area and per head of cow buffaloes and cows in the State, there are 7.1 persons. The standard of living is fairly good compared to other States. Facilities for grant of credit through cooperatives and by Government exist. But they are inadequate. The price support programmes do not exist except in the case of cotton. The administrative Units are Central and State. States are divided into Dis-Administrative convenience, States are divided into districts, talukas and villages. Literacy is 24.6%. Farming is hazardous owing to climatic insecurity and price fluctuations.

The economic conditions of United States of America and Japan and Bombay State are different so also the philosophy of life, social structure and religious beliefs. In the United States of America there is perfect individualism which is being collectivised through organisations and communication. In Japan owing to decentralisation of industries, there is a check on individualism. In our country, joint family system is giving way to individualism. In the United States of America and Japan increased wants are met by production in the country by utilising all the available material and human resources. As a result the population released from agriculture is absorbed in industries, while that is not so in the Bombay State.

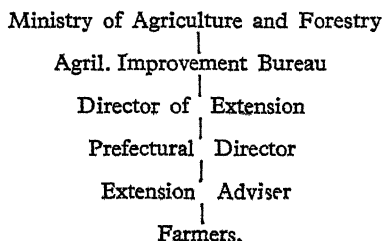
In the United States of America extension means education of rural adult population in the application of scientific knowledge in the business of agriculture and their every day life. The agency which does extension work is called the Cooperative Extension Service. It goes beyond just increasing the agricultural and home efficiency. It aims at increasing the income of the farmer and his family to live richer, fuller life—life of work, recreation, education, etc. It helps building cultural understanding. Its philosophy is to help people to help themselves. It is a development of nearly a century. But it was systematised in the year 1914, by establishing cooperation between Federal, States and County Administrations by legislation. The act has laid down the proportion of financial contribution by respective Governments (*vide* Appendix I). The proportions vary depending on the tax-paying capacity of the County and the State. On an average, the contribution from Federal, State and County Govern-

ments are 50, 30 and 20 respectively. The organisational set-up of the Extension Service is as under:—

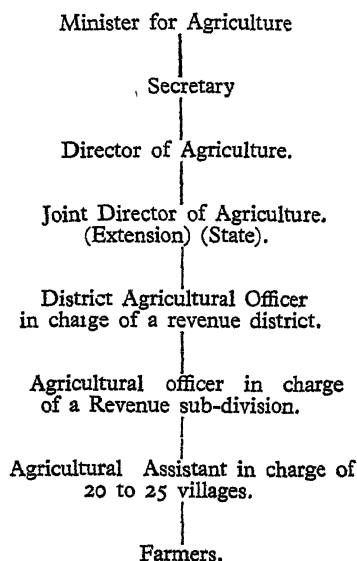


In the United States of America there are 12,000 County Extension Agents. They include Subject-Matter Specialists. Today at the County Seats, there are 2,800 County Home Demonstration Agents and 680 Assistants in the more populated centres. Amongst them are 400 Negro Demonstration Agents.

In Japan, extension is recently introduced on the same pattern as that of United States of America. Previous to the introduction of this pattern, extension work used to be done through the Agricultural Cooperative Associations. At present there are 700 Specialists, 10,000 Farm Advisers and 700 Home Demonstration Agents. The Organisational set-up of the Extension Service in Japan is as follows:—



In the Bombay State, prior to 1946 the work was done by a very small staff consisting of one or two Agricultural Overseers for a district, the size of which is about 4,000 sq. miles assisted by a few Field Kamgars, now known as Agricultural Assistants, under the guidance and control of the Divisional Deputy Directors of Agriculture. From the year 1946, the Extension organisation has been expanded. Today there are about 1,600 Extension workers in the Agricultural Department including Specialists. The organisational set-up is as under:—



The Extension Organisation in the Bombay State may be expanded, strengthened and made permanent.

Extension work in America is purely educational in character but it is tax-supported. The Extension Workers are demonstrators and guides. Extension work is carried through County Agents. They occupy key positions. They are paid by County, State and Federal Governments Cooperatively. For each County, there is one County Agent (man) and one Home Demonstration Agent (woman). They have to contact two to three thousand farm families. In Japan, there is one Agricultural Adviser for a village and a Family Farm Adviser for a group of 10 to 12 villages. The former has to contact about 500 families and the latter about 5 to 6 thousand families. In

the Bombay State, there is an Agricultural Assistant for a circle of 25 to 30 villages. He has to contact about 1,000 to 1,500 farm families.

In American Extension Workers do not stock the supplies of the requisites required for distribution to the farmers. The supply work is left entirely to the trade, but necessary controls and checks are imposed through legislation. In Japan, the supply work is done by the local co-operatives. In Bombay State, the Extension Worker is called upon to work as a stockist and distributor of seeds, plants, fertilisers, insecticides, implements, etc. In addition to his normal function of demonstrating the usefulness of improved practices in agriculture. In America, the Extension Workers are not concerned with the regulatory functions like certification of seeds, checking the qualities of the requisites required by the farmer under the State laws. The Acts pertaining to the regulatory work are executed by the Department of Agriculture. They are not called upon to do the service functions also. Soil conservation work which falls in this category is done by a separate agency. The Soil Conservation Section is directly under the control of the Federal Department of Agriculture. The Extension workers prepare field for the soil conservation work. They do not undertake the work themselves. In Bombay state, it is under the State Director of Agriculture.

Under our conditions, it is doubtful whether the work of making supplies available can be left to the trade till adequate and efficient co-operative or private agencies develop to under take this work and suitable legislation is enacted for certification of seeds and check on spurious manures materials, etc. The work shall have to be done by the Government agency necessarily under the Agricultural Department but quite separate from the agency doing extension work, until such time as the work entirely passes over to efficient farmers organisation.

In America, Extension workers are generally local persons with practical experience in farming. They are Graduates of Agricultural Colleges. Their salaries range from 3,500 to 5,000 dollars per year. They have security of service and are considered as members of the teaching staff of the Agricultural College. They do not belong to any political party and consequently they are free to contact the farmers of any party. In Japan the local Farm adviser and Family Farm Adviser are School or College Graduates. Their salaries range between Rs. 75 and

Rs. 100 per month. In the Bombay State, the Agricultural Officer in charge of a revenue sub-division comprising three to four talukas, the size of which is equal to that of a Country is a Graduate of an Agricultural College. The Agricultural Assistant is a certificate holder of the Agricultural School. The salary of an Agricultural Officer is Rs. 80 to 300 while that of an Agricultural Assistant is Rs. 55 to 135. For the convenience of rural areas, the salaries are not very attractive. In the case of certificate holder, the standard of eligibility for admission to the Agricultural School requires to be altered. At present the minimum qualification for admission to an Agricultural School is the primary school leaving certificate. It should be raised to the Secondary School Leaving Certificate Examination or it should be farming experience of at least 4 to 5 years after the primary school leaving certificate examination. The revenue sub-division is too big a charge for Agricultural Officer under our conditions. The charge should be one taluka which has about five to six thousand farm families.

In America as well as in Japan, extension workers are fully equipped with propaganda kit and are provided with transport like an automobile or a cycle. Propaganda material consists of flannelograph, film strips, camera, radio etc. *The workers in the Bombay State are not adequately equipped. They should be fully equipped with the necessary propaganda kit.*

In the United State of America, there are one or more Agricultural Colleges for each State. The size of the State on an Average is about $1\frac{1}{2}$ times that of the Bombay State. The colleges are affiliated to a University. The Agricultural Colleges serve as links between Federal and State Governments for teaching research as well as extension work (Appendix II). The Agricultural Colleges, therefore, are the reservoirs of information useful both for residential teaching as well as extension teaching. In the Bombay State, there are three Agricultural Colleges. Two of them do teaching and one does both teaching and research. The Agricultural Colleges are affiliated to Universities but they are under the Department of Agriculture. In Japan there is a college for every prefecture. In America, subjects of Extension and Home Economics are included for the degree course in the curriculum of the Agricultural Colleges. Agricultural Colleges in the Bombay State do not have these subjects for the degree or certificate course. *It is necessary to include these*

subjects for the degree course in our Agricultural Colleges and for certificate course in Agricultural Schools.

In the United States of America, great attention is paid to fundamental researches as well as researches of practical utility in agriculture. The experiences of progressive farmers are also pooled. Problems on which researches are required to be carried out are conveyed to research workers by the County Agents through subject-matter specialists. The Research and Experiment Stations in each State attached to the Land Grant College employ 5 to 6 thousand men and women research workers to give their time in finding out the basic and practical facts underlying successful agriculture and home making. In addition the Federal Department of Agriculture employs 7,000 men and women. It may be mentioned that all the Stations are permanent. They under take researches of the long range type. Agricultural experimental farms and research institutions are very liberally financed and are supported by Acts. The same holds good in Japan. *In the Bombay State, research work is adequate. It needs to be expanded.*

In the United States of America, there exist a large number of subject-matter specialists. They act as liaison between research workers and extension workers. They not only post extension workers from time to time with the new scientific advances in agriculture but carry back the problems which need investigation to the research workers. Owing to inadequacy of this agency in our State, the flow both ways is rather restricted. *It is essential to develop these services.*

Vocational training is provided in secondary educational stage in the United States of America. The training includes the subject of agriculture. It is voluntary. Large number of boys elect agriculture. In Japan, the same system has now been introduced. Formerly in Japan, agriculture used to be a subject in elementary Stage. The public is of opinion that the old system of teaching agriculture in the elementary stage should be revised. In the Bombay State there are Agricultural-bias-School and Agricultural High Schools. Recently basic schools have been started. *The subject of agriculture needs to be made compulsory in these schools.* In addition there are 18 Agricultural Schools in the State where boys from rural areas who have passed primary school leaving certificate examination are trained in the practice

of agriculture. *The minimum qualification for admission needs to be raised.*

4-H club, which donates, head, hand, heart and health is a special feature of the United States of America. It is a national organisation of farmers. The age limit of its members is 21. The object is to initiate the young generation into their future vocation and make them good citizens. The county agents assign suitable projects to the members of 4-H clubs with the consent and help of their parents. Competitions of the work done are held and ribbons are awarded. The exhibits fetch a very good price and therefore there is a good incentive. *The meetings of 4-H rs develop leadership in them.* The Future Farmers of America is another important national organisation. The principle is just the same as that of 4-H club. But the boys joining Future Farmers of America get concession in their School hours whereas 4-H club boys do their work out of school hours. *A beginning may be made in the Bombay State. The Extension Workers may sponsor the activity, create enthusiasm amongst the parents and the local leaders.*

Community Clubs and Home Makers' Clubs are the non-official agencies and form the artery of adult education. Personal visits are very effective in extension work. It is not possible for the Extension Agents to contact about 3 to 4 thousand farm families in a short time. Chairman or Secretaries of the Clubs who are their leaders receive training from the agents in certain problems which they convey to their members. *They act as voluntary teachers.* Generally all elderly members of the families belonging to the community are members of these clubs. In these clubs, in addition to the social activities, economic problems pertaining to the communities are discussed and solutions evolved with the help of Extension Agents. The object of Home Makers' Club is also the same as that of Community Clubs. But the membership of the former is restricted to women alone. We have no such organisations at all. In towns and cities we do come across some meetings for social contact on some religious days etc.

The County Home Demonstration Agent is an important person in Extension Service of United States of America. She is concerned with the problems pertaining to home making which include processing of food, its preservation, arrangement inside homes, cleanliness, nutrition, etc. Many a time approach through women is

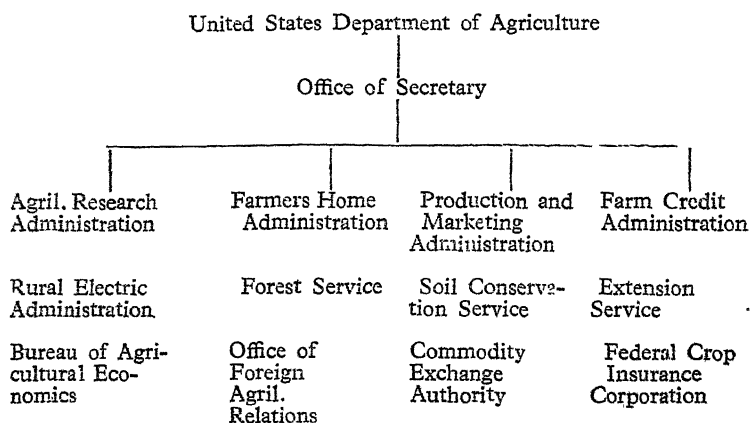
very effective in bringing about a change. This agency is absent in our country. *It is absolutely essential to make a begining though it may take some time to take roots owing to social and economic set-up of our rural population.*

In the United States of America, the method of approach in extension is democratic. The programme of extension work is drawn up after ascertaining the local needs through the leaders of communities. The programmes are approved by the Country Rural Programme Committee constituted under the County Act and forwarded to the sponsoring body for the approval of the Dean of the College of Agriculture. The County Agent is a member on this Committee. In Japan, the Village Councils do it. In the Bombay State, a system of this type is being developed through Taluka Development Boards, District Development Boards and the State Development Board. These Boards are semi-Government bodies. Still a good deal of progress in this line is to be achieved. In the United States of America, the County Agents adopt the programmes by personal visits, personal letters, circular letters, posters, visual aids, demonstrations. In the Bombay State, the Agricultural Officers and Agricultural Assistants contact the farmers by personal visits, personal letters, etc. On the Agricultural Demonstration Centres, method as well as result demonstrations are arranged and utility of improvements showed to the farmers. We have about 314 Agricultural Demonstration Centres. *This number needs to be increased ten fold. Publicity side in our State is very much neglected. It is necessary to establish a separate publicity branch under the Department of Agriculture as publicity of this Department is of technical character.*

Exhibitions and shows are potent weapons in acquainting farmers with improvements in agriculture. This is one of the ways of approach. In the United States of America Shows and Exhibitions are sponsored by the trade or by commercial business firms the ultimate object being the turn over their goods.

The administrative set up of the Agricultural Department in U.S.A. which is given below points out that the Agricultural Department is so constituted that it has under it all those Departments which are complementary to extension. Though each is independent of the other, a unified control at the top creates a feeling of fraternity

amongst all. It adds to the dignity and status of the Extension worker who is purely a missionary.



The United States of America is a country of organisations. There are as many as 10,000 Farmers' Cooperative, practically for each crop or for each aspect of farming. They cater to the economic needs of the farmer. In addition there are organisations of the type of Federal Farm Bureau, National Grange and Farmers Unions. The Federal Farm Bureau covers 45 States and has a membership of 14 lakhs farm families. The National Grange covers 37 States with a membership of 8 million persons. The Farmers Unions cover 30 States and has a membership of 4.5 lakh families. In addition to the above farmers organisations, there are National Councils of Farmers co-operatives spread over in 8 States with a membership of 2.9 farmers' families. *These organisations safeguard of the farmers. They study the effects of various legislations of the various Governments and acquaint the farmers with their implications. They have their own publicity. We lack immensely in such organisation in the Bombay State.*

The study of extension work amongst the Spanish Americans and Red Indians who differ in culture from the contemporary white Americans revealed that in extension, approached should be such that it would not create resentment. The approach should begin at such points where chances of resentment are very few. The Extension work is thereby facilitated and it takes roots quickly if the work is entrusted to persons knowing the language and to those who belong to their groups. While evolving

the programme, for a change, it is necessary to take into consideration their traditions, their habits and their point of view. These principles will be very helpful in our conditions as in our State there is wide diversity in culture, traditions and language.

The Tennessee Valley Administration Corporation is an instance how big financial Corporations can achieve in a short time. The Corporation has stopped floods which caused serious damage by putting levies on river banks, has developed water communications and electricity. As a result new townships have sprung up and the industries have been decentralised. Pressure on land has been reduced. Part-time employment has been made possible to the farmers. The standard of living has gone up. Similar is the case with the Irrigation Development Boards, in the desert areas of the south. These financial corporations have, for quick development, assumed all powers of the Development Departments. They have become Government within Government. Likewise the Red Indian Civil Service has centralised the functions of all the Development Departments in the country within itself in respect of its own reservations. Though such a set up is conducive to quick change, ultimately it comes in conflict with the general administrative set-up of the country vitiating the ultimate objective.

In America, Farm Credit Administration under the Department of Agriculture looks to the credit requirements both short term and long term of the farmers through Land Mortgage Banks, Production and Credit Administration, Farmers' Home Administration, throughout the country. In addition, local banks also meet the credit requirements of farmers either direct or through ginners and middlemen. The producer is made each and any young and energetic person who wants to take to farming is given loan on his own responsibility. Loans are given for household requirements also. The farmer's capacity to make farming a success makes him credit-worthy. In addition arrangements for insurance of crops and livestock exist. Price support programme is also worked through this Administration. In Japan also the Agril. Co-operative Association Division of the Ministry of Agriculture and Forests arranges for credit through village co-operatives and their federations. Arrangements also exist for insurance of crops and livestock through local Insurance Associations. They are federated at prefectural and national levels. In cases where it is obligatory, premium is subsidised by the national Government.

102 M. of Food & Agri.

The co-operatives help Government in procuring food-grains. Procurement is done at parity prices. *In the Bombay State credit is granted by co-operatives as well as by Government as tagai.* But it is not adequate. Recently Reserve Bank of India has come forward to make finance available to farmers through co-operatives. No arrangements exist for crop insurance. Possibilities of introducing crop insurance may be explored.

In America, out-put per man rather than output per acre is an important consideration because of big holdings, while in Japan, the size of holding being small, output per acre is the main consideration. The land is intensively cultivated in Japan. Two, in some cases three crops are taken. Vegetables are continuously grown. Intensive cultivation of paddy is a special feature of Japan. Seedlings are grown on raised seed beds after heavy manuring. High yielding Japanica variety is used. Rice fields are heavily manured with superphosphate, potash, nitrogen and the crop is intercultured very often. The method is practiced by almost all the farmers and consequently the average yield of the country is almost to the tune of 3600 lbs. of rice. *In the Bombay State in areas where there are irrigation facilities and where there is assured water supply, efforts may be made to persue the farmers for intensive agriculture.*

Land reforms is another special feature of Japan. Land is purchased by the Government and sold to the cultivators at prices fixed by the Commissions. The value of the land is required to be paid in 24 annual instalments. Government makes payment to the land-owners in 24 years. Bond bears 3·6 per cent interest. As a result of this measure, the farmer's cost on account of land rent is reduced. *This acts as a good incentive for greater and greater production. In the Bombay State, tenancy problem is being tackled with suitable tenancy legislation.*

In America and Japan, the percentage of area under forests is 40 per cent. and 57 per cent. of the total area respectively. There are national, State and private forests. In the Bombay State the area under forests is hardly 16 per cent which is very low. Only in exceptional cases, the forest belongs to private agency. Cultivable waste or the waste lands which are generally undulating and are known as revenue forests may be developed as private forests with certain restrictions on the farmers. As these lands are now being brought under cultivation, the problem of soil conservation is likely to assume serious proportion. The balance between the area under pasture and

cultivated crops is disturbed. The cattle do not get adequate grazing facilities. A vicious circle is established. This aspect needs consideration.

In the United States of America and particularly in Japan, the farmers make efforts to process goods before sale. The object in doing so is to provide more employment to themselves and to appreciate goods in value. In Japan, use of small hullers, rope making machines has become common. In the Bombay State, mixed farming, i.e. farming combined with livestock management or milk production is gradually developing. But there is good deal of scope for hulling, shelling groundnut, preparing *dal* preparing mats, etc., standardising rural and forest products etc., at village end.

In the United States of America as well as in Japan, Extension work is directed towards increased production and increased standard of living of rural people. The methods adopted are use of improved seeds, giving high yield, use of fertilisers, increasing acreage under irrigation and bringing new lands under cultivation, reclaiming lands, advising the farmers in better living and home making. The work in the Bombay State is on the same lines except that the farmers are not advised in better living and better home making. *The skill of the Extension worker in the United States of America and Japan lies in universalising the adoption of scientific improvements in agriculture which help to increase the general production of the country.* Particularly in Japan where the size of holding is small, Workers are always directed towards this end. The Extension Workers of this State may have to emulate the example of their counter-parts in other countries though it is difficult task on account of varying climatic and economic conditions. *They will have to strive hard to create mass enthusiasm and bring about a change of attitude which would result into a habit by persuasion rather than by compulsion.*

Extension work cannot be isolated from the contributory factors like easy and quick transport, cheap credit, cheap power, adequate price, good marketing facilities, law and order and perfect cooperation between all sections of the communities, for its success. Similarly matters pertaining to long term plans in respect of land ownership, irrigation, decentralisation of industries, decentralisation of administration, are important contributory factors to

the success of extension work. All these factors lie beyond the control of individual farmers or their organisations. They are the functions of the County, State and National Governments. So far as the contributory factors of immediate nature are concerned suitable steps are being taken as need arises in the Bombay State. However in respect of the long range contributory factors, there is urgent need of developing cheap electric power for use in agriculture and industries, increasing irrigation facilities, decentralising industries, taking marketing activities close to the farmer to increase their bargaining strength, decentralisation of administration to hasten the pace of progress.

Sd/-

Joint Director of Agriculture (Extension),
Poona 1.

Poona 1,

21st March, 1953.

APPENDIX VII

GOVERNMENT OF BOMBAY

Political and Services Department

Circular No. CDP. 7654

Bombay Castle, 3rd September 1954

CIRCULAR OF GOVERNMENT

The problem of securing voluntary co-operation of farmers in the task of stepping up food and agricultural production in the State in general and in the project areas (Community Development Projects and Community Development and National Extension Service Blocks) in particular has been engaging the attention of Government. The objective is to provide an active institutional link between the extension staff on the one hand and farmers on the other so as to foster growth of two way traffic, that is to the research knowledge improved farm techniques and scientific methods evolved being passed on to the farmers and the latter's difficulties, problems and also opinions concerning agricultural practices, land utilisation, etc. being in turn conveyed to the proper government quarters for consideration and solution. By devising a suitable organisation to provide scope for such a two way traffic and working it up with the farmer and extension staff, not only the farmer could be made a conscious and intelligent unit but a close Unison established between him and the extension agency.

2. Hitherto one of the agencies concerned with maintaining a liaison between the extension staff of the Agricultural Department and cultivators has been the Taluka Development Association which is registered as a Co-operative Body under the Bombay Co-operative Societies Act. Government has also sponsored another scheme under which the Rural Development Boards/District Development Boards are required to prepare a list of "progressive farmers" whose advice and assistance is sought for by extension and other Government officials. But these two institutions have not been able to provide adequate links between the extension agencies and the farmer.

3. In the Community Development Project/Blocks and National Extension Service areas Government has posted Gram Sevaks, who are multi-purpose workers, each in charge of a group of villages. There are also specialists on the Project/Block staff, such as Agricultural Officers etc., Deputy Engineers, Sanitary Inspectors, Co-operative Officers etc. It is the duty of these Gram Sevaks and the specialists to approach farmers and explain to them the scientific methods of cultivation and prevail upon them to adopt these methods, and also arrange for necessary supplies required to carry them out. In order that a Gram Sevak should be able to discharge his duties satisfactorily, he must mix with the farmers, study their problems and needs, and take them into his confidence in his efforts for their solution and satisfaction. In this way he will be able to win the confidence of the farmers. All this is possible only if real farmers could be brought together and made to think and act as a group concerning their problems with the active assistance and guidance of the Gram Sevaks and others above them. Individual approach to a farmer and individual conviction may be difficult to achieve for a Gram Sevak, but group thinking will bring about greater conviction and, perhaps, ensure greater efficiency* in subsequent action. What is actually needed to bring about a fusion between the Extension Service and farmers is a collaboration in thinking, planning and execution.

4. In the circumstances, Government has decided that, in the areas covered by the Community Development Projects and Community Development and National Extension Service Blocks, "Farmers' Unions" should be organised, to begin with. Ordinarily, territorial extent of a Union should be co-extensive with the areas of villages in charge of a Gram Sevak. Such Unions should be open to any agriculturist, as defined in the Bombay Tenancy and Agricultural Lands Act. It should be the duty of the Gram Sevak to advise the farmers to organise such unions, help them in their organisation and work in consultation and close co-operation with their unions.

5. The main aims and objects of such a union will be:—

- (1) To foster group thinking leading to group and/or individual action.
- (2) To work in close association with Gram Sevaks or any other extension staff.
- (3) To arrange for discussion on and demonstration of improved farm techniques and scientific

methods of cultivation and subsequent propaganda for their adoption.

- (4) To arrange for discussion of farmers' problems and difficulties and their solution in consultation with the extension staff and/or concerned Government Departments.

6. These Unions should be made into active bodies functioning not only in the fields of Agriculture but also in other fields of vital importance in farmers' life. The agency of the Union could, therefore, be utilised for improvement of village health and sanitation, educational facilities, recreational programmes, etc. They should also be entrusted with the execution of works like construction of school buildings, roads, drinking water wells, bandharas, etc. It is necessary that these Unions should work in spirit as well as in form on democratic lines, and, in no case, be permitted to be used as venues for political propaganda. The Collectors, Prant Officers, Mamlatdars and the technical staff under them should take keen interest in the organisation and working of these Unions and provide active assistance in promoting their objectives.

7. In organising "Farmers' Unions" the pattern of Co-operative Societies in respect of constitution, election of office-bearers, mode of working, etc. may be followed. The only difference between a Farmers' Union and a co-operative Society is that the former is a formal unregistered body whereas the latter is a formal registered body.

8. The Collectors should now take necessary action to organise "Farmers' Unions" as indicated above. In the monthly Progress Reports submitted by the Project Officers and Prant Officers in charge of National Extension Service Block, they should add one more item as "Farmers' Unions" and indicate progress about them.

By order and in the name of the Governor of Bombay,

S. P. MOHITE,

Jt. Secy. to Govt. Political and Services
Department.

APPENDIX VIII TO MINISTER OF AGRICULTURE'S CIRCULAR LETTER-NO. XIV

EXTRACTS FROM THE LETTERS RECEIVED FROM STATE MINISTERS
OF AGRICULTURE, CO-OPERATION ETC.

*Copy of D.O. No. 119162.B.III/54-4, dated 28-10-54 from
Shri M. Bhaktavatsalam, Minister of Agriculture, Madras*

This letter has to begin with a melancholy note. The news of the death of Shri Rafi Ahmad Kidwai came as a shock to all of us. His able handling of the food situation has done not a little in infusing hope and confidence in the minds of the agriculturists at a critical period. We have lost in him an able and shrewd colleague.

2. The North East Monsoon set in in this State punctually in the second week of October and made a promising start. Widespread thunder showers occurred in the southern districts of the State. A depression formed in the south east of the Bay of Bengal on the 19th October and under its influence the monsoon has been active over the State causing widespread rainfall. The condition of the standing crops is reported to be satisfactory in all the districts, except in parts of South Arcot and North Arcot.

3. In my last letter I could not comment on your letter No. XII of 6th September 1954, as it was received too late. I was interested to learn of the progress made in the formation of the All India Farmers' Organization and in the information which you have been collecting about similar organisations in other countries. The extensive notes that you have given about the American Farm Bureau Federation make interesting reading. The AFBF appears to have a nationwide membership of nearly 1½ millions and function as the voice of agriculture in America. Another unique feature in American agriculture is the Grange which safeguards agricultural interests in the Congress and the State Legislatures and promotes the cause of good Government. The information that you have given about the Canadian Federation of Agriculture which speaks with authentic voice the opinion of the farm people of Canada is also instructive. It is interesting to note that the Federation meets annually the Prime Minister of Canada to discuss

farm policies. It would be a good gesture if some such convention is established in our country also. Even now, the prize winners in the All India Crop Competition have the privilege of receiving their prizes from the hands of the Prime Minister. But as there is no all India body of farmers at present, a convention as in Canada, cannot be set up till your efforts to form the All India Farmers' Organisation materialise. The information that you have promised about the farmers' organizations in the United Kingdom and Denmark will suggest more ideas. I agree with you that we need not be blind imitators of the set up in any of the foreign countries but we must be aware of what is going on in the agricultural sphere in the various other countries. Particularly it might be interesting to study what is happening in China where the problem has been attacked on the basis of mutual aid and co-operation among small groups of peasants.

4. This leads me on to what you were saying in your address to the All India Co-operative Union and to the note from Shri Monoharlal Rajora which you have quoted in your letter No. XIII about the moral aspect in co-operation and the policy of *laissez faire* by the Government. You have spoken, if I may say so, with a brutal frankness about the need for weeding out undesirable and unscrupulous elements who come into co-operation only to derive private gain and advantage. This, of course, is an ever-present problem in all human institutions but to the extent that the rigour and discipline of any movement is maintained, to that extent these undesirable features could be suppressed. In fact our Registrar of Co-operative Societies proposed on one occasion a system of 'selective membership' in co-operatives in order to tone up the morale of the co-operative institutions. But this could not be accepted as the legality of denying membership to any one eligible under the Act could be successfully challenged. Whatever may be the success of promoting ethical standards by Government control in co-operative institutions, I see a great future in the experiment of National Extension which is working on the basis of mutual aid and collective interest. Here is a movement where high-souler collective action has to be generated not by any statutory powers conferred by an Act which the Executive could use but by stimulating the humane and patriotic instinct of collective and individual elevation. This movement may in the fullness of time prove to be as successful as the T.V.A. in America in establishing the grass roots of democratic and co-operative endeavour in the soil.

5. As regards the slow progress of the co-operative movement in India, while it might not be disputed that the movement has not achieved as much as we could have wished for in all the fifty years of its existence, there are some achievements for which we should legitimately lay claim to and be proud of. I attach as Appendix to this letter an abstract of the progress of the movement in Madras during the six years ending June 1953. However, the human problems that you have posed in your letter require constant attention and solution.

6. In your letter of September, you also referred to the slow progress of the Grow More Food schemes and listed Madras among the States in which progress was very poor. Evidently these observations were based on the figures of additional production as reported by this Government to the Directorate of Economics and Statistics in the progress reports for the years 1951-52 and 1952-53. I should explain the slow progress as follows:

The additional production achieved from all Grow More Food schemes by the Composite Madras State was 2.18 lakh tons during 1951-52 (as reported to the Government of India in the progress report for the year ended 30-6-52) and 2.50 lakh tons during 1952-53. The corresponding targets of additional production provided in the First Five Year Plan were 4.27 lakh tons for 1951-52 and 5.31 lakh tons for 1952-53 and these targets covered not only the Grow More Food schemes for which achievements were reported but also some major irrigation schemes for which results have not been separately assessed and brought to account. Further, the gap between the target and achievement was also due to the following major factors:

(i) During 1951-52, the achievement of 2.18 lakh tons reported by this Government in the annual statement represented only the booked results, as verified and brought to account by the Revenue officers and not the entire results which would have been realised from the units of "Works" and "Supplies" completed during the year. Physical verification either by field inspection or enquiry by the Revenue officers has got its limitations and is expected to cover not the whole of but only a fair percentage of the actual results.

(ii) During 1952-53, the gap or shortfall between the target and the achievement is primarily due to the adoption of a high target of 3.12 lakh tons of additional production expected from an anticipated distribution of 1.56

lakh tons of Ammonium Sulphate. Actually, however, only 75,917 tons of ammonium sulphate were distributed and this quantity would have resulted in an estimated additional production of only 1.52 lakh tons during the year, as against the original target of additional production of 3.12 lakh tons.

It will thus be seen that there has been fairly good progress during the years 1951-53. The report showing the progress achieved during 1953-54 is expected to be finalised shortly on receipt of certain particulars which are still awaited from the Director of Agriculture. Special instructions have, however, been issued to the Heads of Departments in charge of the various Grow More Food schemes to keep a very close watch over the progress of sanction and execution of the programmed schemes so that they can be brought to beneficial use according to schedule during the target period.

7. The National Extension Service was sanctioned in ten additional blocks on 2-10-1954 to synchronise with the birth day of Mahatma Gandhi. Representative villages which are capable of being developed into model units were first selected for launching the scheme in these new blocks. The inauguration was preceded by intensive publicity and propaganda. On the 7th of October, I convened a conference of the Project Executive Officers and National Extension Service officers and the Press at Aduthurai in Tanjore district in order to review the progress of the schemes. The conference and the conducted tour of the Press were a great success as they afforded ocular evidence of the improvements that were made under the schemes. The United Nations Technical Assistance Board in collaboration with the Government of India also sponsored a visit of the senior officials from the Philippines, Indonesia, Burma and Ceylon to some of the Community project areas and Training Centres in India. These delegates arrived in Madras early this month and toured the State for about a week seeing for themselves the work done under the Community Development Programme. The tour concluded with a Seminar at Gandhigram on the 8th October. The delegates were much impressed with the work done under the scheme.

8. We have created a special sub-division consisting of an Assistant Engineer and subordinate technical and administrative staff in each district to push through vigorously the execution of Local Development Works and

Local Works under the National Extension Service. The execution of rural water supply and sanitation works has been entrusted to the Sanitary Engineering Department with a view to obtaining speedy results. A special division of Public Health Engineering staff has been created in this connection for devoting proper attention to the execution of these works. The Government have also decided to open 650 adult schools in the areas covered by the Community Projects and 1,000 adult schools in the areas covered by the National Extension Service. A primary health centre has also been opened in the Periyar Project. Various minor items of help are also being given in the development areas; for example, fruit seedlings and vegetable seeds are being distributed at Government expense. A number of Japanese interculturators has also been purchased for demonstration purposes. Two demonstrations of Wardha Ghanis are being set up, one at Sivagiri in the Lower Bhavani Project and the other at Ramarajapuram in the Periyar Project.

9. I have already mentioned in my previous letter about the village seed farm development scheme, which is being tried in this State. I inaugurated this scheme in Tanjore during my visit in connection with the Conference mentioned in the paragraph 7 above. So far in Tanjore district, 1,200 villages have been covered with improved seed in the Kuruvai (short term) and 1,400 villages in the Samba (long term) crops and these are out of a total of 2,600 villages for the whole of the Tanjore district.

10. You have referred in your letter to the economic condition of cotton growers and to the question of increasing the yield of cotton. Constant attention is being paid in this State for the evolution of better types of cotton and for securing better returns for the growers. In this State cotton and groundnut are the two major cash crops of the ryots and the prosperity of the ryots is not a little linked with the gains from cotton. To the extent that commercial crop production is lucrative to that extent grain farming will be kept up to the required scale, as the tardy gains from grain farming can be made up only by the profits from cash crops.

11. You have also referred in your letter to one or two matters which are out of the ordinary run; for example you have referred to the need for authoritative books on fruits and vegetables. We have produced some useful books on South Indian fruits, mangoes and bananas which you might be pleased to peruse. You have done a great

service by drawing attention to the need for periodical and journals bearing on Agriculture being read with care. Owing to over-work or some reason or other, even some of our officers do not peruse these periodicals carefully. We have under consideration a proposal to circulate latest books and abstracts from journals to the agricultural officers. As you know we are also publishing an Agricultural Newsletter which contains information of interest on the results obtained in our farms. I shall have the question examined whether interesting abstracts from "Indian Farming" and other journals cannot be included in this newsletter.

12. I inaugurated the Gosamvardhan week on the 27th by a radio talk. Cattle shows will be held in important centres during the week. The Animal Husbandry Department is also taking steps to enlist non-official co-operation in this programme.

13. In our fisheries programmes, we are constantly up against a serious socio-economic factor, viz., the bad housing conditions of fishermen. The Fisheries Department can take action only for the development of fisheries and fishing technology but the improvement of housing is a problem which is too big for the Department to tackle. The local bodies and municipalities evince very little interest in the matter for the obvious reason that their finances are meagre. I wish the Government of India bestow attention on this subject and come forward to offer interest-free loans and subsidies for the rehabilitation of fishermen. Currently we are faced with a local problem, viz., the displacement of the fishermen due to sea erosion, north of the Madras Harbour, which has been going on for some years. Myself and the Chief Minister inspected the affected area two or three days back. We hope to solve this problem in a small way but, as I said, the major problem is one of tremendous dimensions and it would be a pity if this important sector of the population plying a useful trade is condemned to housing conditions which in some respects are worse than slums. The peculiar feature of the problem is that these people have necessarily to live near the sea shore and cannot be removed to other favourable areas where land could be obtained free or by acquisition. The question of rehabilitation has, therefore, to be restricted to fishing villages near the sea coast. Some foreign aid appears to be available in this respect; for example a Norwegian fisheries community scheme is working in the Travancore-Cochin State and a Canadian offer for the east coast near Tuticorin is being

examined by this Government but this, as you are well aware, will solve the problem only in a single area and not in areas elsewhere. The problem however demands attention. You will be interested to know that a system of warning signals during monsoon months has been set up with the co-operation of the Meteorological Department for the benefit of the fishermen going out to the sea so that they might be pre-warned about squally weather and off shore winds.

14. Arrangements are being made by the Forest Department in connection with the ensuing Fourth World Forestry Congress at Dehra Dun. Excursions for delegates are being planned to cover important regions in the Nilgiris and Nilambur forest divisions. Pamphlets are also being printed for the use of the delegates. The Forest Department is also participating in the exhibition to be organised in connection with the Congress session.

15. The index number of wholesale prices of foodgrains in the State declined by 17 points from 461 in August to 444 in September 1954 due to a fall in the price of paddy I sort, Cholan and cumbu. The index for commercial products fell by 14 points from 425 in August 1954 to 411 in September due to a fall in the prices of dhall, chillies etc.

16. It is gratifying to contemplate that the system of monthly letters which you have instituted and which by this month will have been in existence for one full year fulfils an important purpose of providing a means of communication of ideas and suggestions, which will elude grasp and expression in the ordinary day to day official correspondence.

ENCLOSURE TO THE ABOVE LETTER

■ *Achievements of the co-operative movement in the Madras State during 6 years ending June 1953*

During the period under reference striking results were produced in the progress of the co-operative movement in this State. The number of societies which was 17,057 on the 30th June 1947 has now risen to 25,850. Their membership rose from 22.10 lakhs to 38.65 lakhs. Their paid-up share capital and working capital on the 30th June 1953 were Rs. 12.81 crores and Rs. 97.03 crores respectively as against Rs. 5.43 crores and Rs. 50.97 crores at the end of June 1947. The number of agricultural credit societies rose from 11,375 on the 30th June 1947 to 17,201 on the 30th June 1953. During the year 1946-47 they issued to Rs. 3.47 crores

as loans to their members whereas during the year 1952-53 they issued as much as Rs. 7.09 crores. On 30th June 1947 there were 120 land mortgage banks which had issued to Rs. 46.96 lakhs as loans to their members during the preceding year. On 30th June 1953 there were 130 land mortgage banks. They issued Rs. 104.35 lakhs as loans to their members during 1952-53. Likewise there was an increase in the number of marketing societies from 193 on 30th June 1947 to 286 on 30th June 1953. There were 21 milk supply unions and 269 milk supply societies on 30th June 1947. The value of milk supplied by them during the year 1946-47 was Rs. 68 lakhs. There are now 41 milk supply unions and 740 milk supply societies which supply milk worth Rs. 143.76 lakhs in a year. The wholesale co-operative stores and primary co-operative stores sold goods worth Rs. 254.14 crores during the years 1947-48 to 1952-53. They co-operated with Government in their policy of food distribution and acted as a check on the ordinary channels of trade. There are now 1,191 weavers' co-operative societies with 2.11 lakhs of looms in their fold as against 659 societies with 108 lakh looms on 30th June 1947. The total number of houses constructed by all types of urban housing societies during the last six years was 4,766 while the number completed during the previous 25 years was only 2530. The co-operative movement thus attained during this short period a stature and dimension equal to what it was possible for it to attain during the previous period of 43 years of its existence. This was largely due to the encouragement and help given by the Government to co-operatives and the enthusiasm and unstinted support extended by the non-officials who have joined the movement.

B. OF APPENDIX VIII

B. COPY OF LETTER No. F.25(33)AGR./54, DATED THE 8TH OCTOBER 1954 FROM SHRI MOHANLAL SUKHADIA, MINISTER FOR REVENUE AND AGRICULTURE, RAJASTHAN.

Please refer to your Circular letter No. X dated the 2nd July, 1954. In para 30 of this letter you have mentioned that the Government of India propose to initiate pilot project to control and eradicate Rinderpest disease. Rajasthan is perhaps the most important State in India in the matter of livestock. May I, therefore, suggest that one of the proposed pilot projects may also be set up in this State.

I whole-heartedly support your proposal to set up Commodity Committees for wheat, rice, jwar, bajra, pulses and other foodgrains like maize and ragi. It will

be very useful if meetings of research workers and practical agriculturists growing these crops are arranged for purposes of exchanging ideas and experiences.

C. OF APPENDIX VIII

C. COPY OF D.O. No. 8591-AGRI, DATED CALCUTTA THE 1ST OCTOBER 1954 FROM DR. R. AHMED, MINISTER FOR AGRICULTURE, WEST BENGAL.

I thank you very much for your circular letter No. IX dated 3rd June, 1954, and its appendices which make a very comprehensive and interesting reading of the agricultural problems of the country and the way in which the Central and State Governments are tackling the same with a view to increasing the food production of the country.

After the partition, this State was left with a serious food deficit. Thanks to the assistance of the Government of India, we have been able to intensify our Grow More Food campaign and substantially increase the food production in the State.

As a supplement to the measures for increasing food production this Government has intensified the campaign for introducing the Japanese method of paddy cultivation in this State, the target being to bring about 2 lakh acres of land under this method of cultivation this year. Action is also being taken to afford more training facilities for the Agricultural Overseers, Demonstrators and Union Agricultural Assistants who will disseminate information about improved agricultural practices to the cultivators throughout the State.

Considerable progress has also been made in the State in recent years in the field of Veterinary Education and aid. At the time of Partition, areas now in West Bengal had only 46 itinerant Veterinary Assistant Surgeons who are responsible for dealing with outbreak of contagious and epidemic diseases among cattle in the rural area. The number has now been increased to 110.

Veterinary hospitals in the mufasils were so long under the management of local bodies such as District Boards and Municipalities which had not sufficient funds to equip and run them properly. Our Government have, therefore, taken up a scheme for the provincialisation of all these hospitals. 11 of these hospitals have already been taken over by Government and equipped. 8 more such hospitals are going to be provincialised during this year.

This Government have also taken up a scheme of establishing new hospitals at sub-Divisional headquarters where no such hospitals exist at present. 6 new hospitals were established last year and some more are going to be established during this year.

Our scheme for the Second Five Year Plan is to have a total of about 90 State Veterinary hospitals and one Veterinary Assistant Surgeon for each police station.

The Bengal Veterinary College, one of the oldest institutions of its kind in the country, was so long ignored mainly for the lack of fund and was teaching a diploma course. A scheme for re-organisation and improvement of the College at a total cost of about Rs. 15 lakhs has been included in the First Five Year Plan. A degree course in Veterinary Science under affiliation to Calcutta University was introduced with effect from the academic session last year. The College has been thoroughly reorganised and equipped with modern instruments and appliances. The staff has been strengthened and new constructions have been made to accommodate the new Departments of the College.

Government have also taken steps to modernise and expand the facilities for the manufacture of vaccines and other biological products for the protection of livestock. Equipments have been procured and the remodelling and air-conditioning of the building for the purpose have been undertaken.

For proper implementation of the livestock Improvement scheme to grade up milch and draft cattle in concentrated areas of the State a Bill has been introduced in the State Legislature in the current session.

This Government have also taken up the scheme for the removal of khatala from Calcutta to Haringhata. The scheme provides for the establishment of milk colonies at Haringhata for the resettlement of cattle removed. The aim is to improve the quality of cattle, produce milk at as low a price as possible for supply to Calcutta and its environs, prevent the present waste of quality cattle most of which are slaughtered when they go dry, although still in their prime. The first unit of the milk colony to accommodate 1272 milch animals is nearing completion and will be ready for occupation by October next. It is hoped that it will be possible to complete the removal of all the milch cattle numbering about 40,000 by 31st March 1958. It is proposed to set up 3 additional milk colonies for which it is estimated

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that a sum of Rs. 71.5 lakhs will be required. The Government of India have been moved for a loan of an equivalent amount. With the assistance of the Government of India, it is hoped that it will be possible to make the scheme a success, and relieve the scarcity of good and pure milk in Calcutta.

D. OF APPENDIX VIII.

COPY OF D.O. No. 6107-AGR-54/2201, DATED CHANDIGARH THE 20TH OCTOBER 1954 FROM SHRI PRATAP SINGH KAIRON, MINISTER FOR AGRICULTURE, PUNJAB.

Kindly refer to my demi-official letter No. 5440-Agr-54/1763 dated the 24th September, 1954.

1. *A new yielding variety of rice suitable for cultivation (Kulu Valley) high hills.*

Paddy constitutes an important crop of Kulu Valley. Tests carried out with selected strains of white rice from some agro-commercial groups of Kangra, against the local red rice of Kulu, known as *Jatu* have conclusively shown that varieties of white rice gave much higher yield than the local red rice. Amongst the various strains of white rice tested so far, S-43 of Dundar group have given the best performance during the last five years. During kharif, 1953 it was again under test in four different experiments and in each one of these, it out-yielded the local by high and significant margins as shown by data given below:

Test No.	<i>Paddy yield per acre (Mds)</i>		Excess in favour of S.43 (Mds. per acre).	C.D. at 5% (Mds.)
	S.43	Local		
I	39.31	29.77	9.54	06.9
II	36.00	24.00	12.00	11.40
III	32.00	21.25	10.75	4.25
IV	36.40	18.15	8.25	2.70
Average	33.4	23.3	10.1	

It may be pointed out that S-43 has been tested against the local red rice at Kulu for the last six years and its pre-

ference has been outstanding throughout, as shown by the data summarised below:

Year	<i>Paddy yield per acre</i> S.43	Local	<i>Md. excess in favour of S-43</i>		
			Md. per acre	Percentage	
1948	41.4	31.7	Plus	9.7	30.60
1949	45.0	31.8	"	13.2	41.51
1950	38.2	25.5	"	12.7	49.80
1951	56.3	42.3	"	14.0	58.20
1953	33.4	23.3	"	10.1	43.35
Average	40.70	28.92		11.78	40.73

It is evident from the data given above that S-43 out-yielded local red rice by a margin of 9.7 (30.6 per cent.) to 14.0 (33.10 per cent.) maunds per acre and its average excess over 'local' works out to 11.78 maunds paddy per acre (40.7 per cent.), which is a very high figure. Apart from its being a high yielder, it has a very strong and stiff straw on which account it withstands lodging much better than other varieties. In view of the good performance of this type for over a long period it is recommended for cultivation in the valley. This may be tried to advantage in areas which have similar conditions as Kulu Valley.

II. A new improved strain of Punjab American cotton for Haryana tract.

At present 216-F American cotton is the dominant variety of cotton in south eastern districts of the Punjab. This variety was placed on the Departmental list of approved varieties in 1948 and now it covers over 70 per cent of the cotton acreage in this area.

Further work to evolve better strains than 216F have already borne fruits. A new improved strain H.14, which is a re-selection from 216-F, has now fully established its superiority over the mother strain in yield, technological properties, resistance to pests, early maturity etc. During Kharif 1953, it was tested on the cultivators' fields in the Districts of Hissar, Rohtak and Karnal against 216-F and on the average of 37 trials, it gave 1.23 maunds of kapas per acre more than 216-F. It has 2 per cent higher ginning out-turn has mean fibre length of 0.95 inches as against 0.93 inches of 216-F, spins 39 counts as against 34 counts of 216-F,

matures about a fortnight earlier and is more resistant to jassids than 216F. The cash return per acre from it, on the average of five years, works out to Rs. 810 as against Rs. 715 of 216F. In view of the above mentioned qualities, H-14 has been placed on the Departmental list of approved varieties. Steps are being taken to multiply the seed and distribute it to the cultivators.

III. *Cutaneous form of Rinderpest in goats.*

Cutaneous form of Rinderpest has been recorded in goats in this State. The disease was milder in animals exhibiting cutaneous lesions as compared to the disease in animals affected with the systemic form. Anti-rinderpest serum was administered to the sick and incontact animals. The healthy stock was immunised with 'goatis' cum anti-rinderpest serum administration. These steps helped to control the disease effectively. This may be tried to advantage by goat breeders.

E. OF APPENDIX VIII

COPY OF D.O. LETTER NO. B-8173/XII-B, DATED OCTOBER 28, 1954 FROM SHRI CHARAN SINGH, MINISTER FOR AGRICULTURE,

U.P.

I read with great interest your Circular letters No. XII and XIII dated September 6 and October 2, 1954.

On the occasion of the 27th meeting of the State Board of Agriculture a regional conference of the farmers of the Meerut Division (comprising of the districts of Meerut, Dehra Dun, Saharanpur, Muzaffarnagar and Bulandshahr) was held at Shamli in Muzaffarnagar district on October 4, 1954. An Agricultural Exhibition and cattle show was also organised on this occasion. A special feature of the conference was that the departmental experts met the farmers in group meetings and answered the questions put by them.

I have already addressed you separately about the reduction in railway freight on gypsum. I hope it would be possible to take an early decision in the matter.

F. OF APPENDIX VIII

COPY OF D.O. No. A.3-4037/54/Fd.D. DATED 30-10-1954 FROM
SHRI P. S. NATARAJA PILLAI, MINISTER FOR FINANCE,
TRAVANCORE-COCHIN.

I have perused your circular letter No. VIII dated 1st May 1954 and the valuable notes appended to it with great interest. They are very useful to the Officers of the Agricultural Department, Block Development Officers and the Project Executive Officers in our State. Hence copies of these letters are now being circulated among these officers for guidance.

The details regarding paddy production in India and other countries given in your letter are very revealing. The average yield of rice per acre in the State, last year was 1005 lbs. or nearly 9 cwts. against the all India average of 6.3 cwts. of rice per acre.

The suggestions regarding Rosella or red Sorrel contained in the 'Note on Important items of Development achieved in Andhra' have been considered and instructions are being issued for exploring its possibilities in our State. The Registration of Progressive Farmers, in the State of Saurashtra is worthy of emulation.

The note on the extraction of papain from papaya fruits and its export to America is also of interest to us since papaya will grow well in this State. The Officer in charge of the Fruit Research Station, Sharanpur and the Director of Agriculture, Uttar Pradesh, Lucknow are being addressed for details in this regard.

The question of development of sugarcane is now under the active consideration of Government. The detailed information given dealing with the problem of low recoveries in sugar factories in Madras, has been noted. The Pampa Sugar factory at Thiruvella, in the State, is faced with the same problem of low recovery of sugar from cane. The introduction of improved varieties of cane is being tried. The possibility of substituting Co. 419, which is one of the existing varieties by Co. 527 will, however, be explored.

APPENDIX IX

NOTE BY PRESIDENT, FOREST RESEARCH INSTITUTE AND
COLLEGES DATED 30-6-1954

Forest waste is a term which covers material left in the forest after timber extraction operations. This usually consists of lop and top of felled valuable trees including branch-wood. In those areas where a mixed forest is clear felled for artificial regeneration, forest waste may include entire trees of secondary species whose market value does not justify the incurring of expenditure on the transport of their timber. In localities, where the logs are sawn *in situ* and only converted timber is removed in the form of sleepers (as with conifers on the hills) or sizes and scantlings (as with sal in most cases), the forest waste includes off cuts, saw-dust and bark.

The proportion of forest waste depends on the nature and value of the timber species, the distance of the forest from centres of population and the degree of development of the local industries. In densely populated tracts, such as Gorakhpur district, hardly any material is left unutilized in a felled area. On the Himalayas, per contra, quite large pieces of timber or even trees may be left behind in the forest.

Some avoidable forest waste is caused by felling trees with axes instead of with saws, by leaving high stumps and by inexpert methods of felling trees, leading to damage both to felled timber and to standing timber.

One method of reducing forest waste is to "valorize" the inferior woods by finding new special or industrial uses for them. An outstanding example of this is semul (*Bombax Malabari-cum*) which not long ago was a weed species left to rot in the forest and is now a valued timber for the match industry. It is one of the main functions of the Forest Research Institute to study the technical properties of so-called jungle woods and to promote their utilization for particular purposes, such as plywood, pencil slats, slate frames, ship building, tool handles, etc.

Economic utilization of the less valuable timbers depends on reducing felling losses and cutting costs on felling.

extracting and transporting timber. Our methods continue to be wasteful and primitive in these respects and we have a scheme for setting up a research branch for logging and extraction, whose function would be to apply science to these practices and evolve improved techniques and reduce forest waste. We recently deputed an officer for studying chip board manufacture. He has since returned after studying manufacturing techniques in Europe and America. Research in this field is being carried on at the Forest Research Institute. When relatively simple techniques of chip board manufacture involving a moderate capital outlay are evolved, a considerable reduction in forest waste can be effected, as it will then become possible to make full use of our inferior species and logging wastes for the production of chip boards.

(Sd.) C. R. RANGANATHAN,
President,
Forest Research Institute & Colleges.

APPENDIX X

From

Dr. V. N. Patwardhan, M.Sc., Ph. D., A.I.I.Sc.,
Director,
Nutrition Research Laboratories,
Indian Council of Medical Research,
Coonoor, S. India.

Dated 14th July, 1954.

To

The Under Secretary to the
Government of India, Ministry of Food & Agriculture
(Agri.), New Delhi.

Subject:—Investigation of food value on Ber, Tamarind,
Custard apple etc.

Reference your letter No. F. 19-14/54-F dated 8th July, 1954

The fruits mentioned in your above-cited letter have been investigated here and their food values given in Health Bulletin No. 23 on "The Nutritive Value of Indian Foods and the Planning of Satisfactory Diets". I give below the data for ready reference:—

	<i>A Nonla</i> (<i>Phyllanthus</i> <i>omblica</i>)	Karwanda dry (<i>Carrisa</i> <i>carandas</i>)	Custard apple (<i>Anona</i> <i>sqamosa</i>)	Wood apple (<i>Foronia</i> <i>elephantum</i>)
Moisture % (81.2)	81.2	18.2	73.5	69.5
Protein %	0.5	2.3	1.6	7.3
Fat (Ether extractives)%	0.1	9.6	0.3	0.6
Mineral matter %	0.7	2.8	0.7	1.9
Fibre%	3.4	..	..	5.2
Carbohydrate%	14.1	67.1	23.9	15.5
Calcium (Ca)%	0.05	0.16	0.02	0.13
Phosphorus(P)%	0.02	0.06	0.04	0.11

I	2	3	4	5
Iron (Fe) mgs. %	1.2	39.1	1.0	0.6
Calorific value per 100 gms. .	59	364	105	97
Carotene (International vit. A units per 100 gms.) .	..	..	trace	..
Vitamin B (Microgrammes per 100 gms.) . . . . .	..	..	..	.
Nicotinic acid mgs. per 100 gms.	0.2	..	..	..
Riboflavin mg. per 100 gms. .	..	..	..	170.00
Vitamin C mgs. per 100 gms. .	600	..	..	..

	Tamarind. pulp (<i>Tamarindu. indicus</i>)	Ber (<i>Zizymus injuiba</i>)
Moisture%	20.9	85.9
Protein%	3.1	0.8
Fat (Ether extractives)% .	0.1	0.1
Mineral matter%	3.9	0.4
Fibre%	5.8	..
Carbohydrate%	67.4	12.8
Calcium(Cal).%	0.17	0.03
Phosphorus(P)%	0.11	0.03
Iron (Fe) mgs. %	10.9	0.8
Calorific value per 100 gms. .	283	55
Carotene (International vit. A units per 100 gms.) .	100	70
Vitamin BI (Microgrammes per 100 gms.) . . . . .	..	..
Nicotinic acid mgs. per 100 gms.	0.7	..
Riboflavin mg. per 100 gms. .	..	..
Vitamin C mgs. per 100 gms.	3.00	..

S. RANGANATHAN,
for Director.

APPENDIX XI

NOTES ON THE INVESTIGATIONS RELATING TO THE UTILISATION OF SOME OF THE FRUITS

Aonla or Amla:

It is a rich source of Vitamin C, containing 500 to 900 mgm ascorbic acid per 100 gm. pulp, depending on the freshness of the sample, variety, etc. It has been successfully used for the preparation of syrups and concentrates rich in Vitamin C. The fruit for this purpose is first treated in 2 per cent common salt solution for about a week. It is then washed and steamed for about 15 minutes at 15 lbs. steam pressure. The cooked fruit is crushed in water at the rate of $1\frac{1}{4}$ lbs. water per lb. of fruit. Alternatively, the fruit is cut into small pieces and boiled for 2 to 4 minutes with about double its weight of water. The extract of the fruit in either case is separated by squeezing through cloth. With the addition of an equal quantity of sugar this extract gives a palatable syrup. The extract as such can be used for fortifying other products with Vitamin C. Both the syrup and extract can be preserved with 350 p.p.m. S02.

Detailed results in regard to the above are being published separately.

Ber (Jujubee) has been used for the preparation of candy. The fruits are pricked deep to the stones with a suitable device. Iron must be avoided. The pricked fruits are soaked in 2 per cent common salt solution. After every 24 hours, the concentration of salt is increased by 2 per cent., till it reaches 8 per cent. On the 5th day, the fruits are put in fresh 8 per cent salt solution containing 0.2 per cent potassium metabisulphite and kept immersed for about 6 weeks. The fruits after this are washed, blanched in boiling water and candied in the usual way. The candying process is started with 30 per cent sugar syrup containing 0.1 per cent added citric acid. The syrup is boiled for about 5—7 minutes and poured over the fruit contained in a suitable container. Concentration of syrup is increased by 5 per cent and the process repeated every day, till the final concentration of 75 per cent sugar is reached. After keeping the fruit in this final syrup for a few days, it is drained and dried.

Tamarind

The pulp of tamarind contains 30 to 40 per cent sugars and 9 to 12 per cent tartaric acid. Good quality spiced beverages and sauce have been prepared from it. The method recommended for the home-scale preparation of a spiced beverage is given as under:

The tamarind is soaked overnight in about 4 times its weight of water. The soaked mass is mashed and extract separated by passing through a stainless steel or monel metal sieve of about 30 mesh. The residue is treated with half the previous quantity of water and extract obtained mixed with the first one. To every 10 lbs. of extract, half an ounce of NaHC_3 (dissolved in a little water) is added gradually accompanied by stirring. A loosely tied cloth bag containing 4 gm. each of cinnamon, clove, coriander, caraway seed, black pepper and cardamon; 0.24 gm red chilli powder and 0.2 gm dried ginger powder is put in this extract which is then heated gently and kept simmering for about 30 minutes in a covered vessel. This is followed by dissolving 12 to 13 oz. sugar in it to get the final beverage. The bag of spices is removed and the beverage packed as usual. It can be satisfactorily preserved with 0.05 per cent sodium benzoate.

Custard Apple

It yields about 25 per cent edible pulp which contains about 18 per cent sugars, 0.24 per cent acid (as citric) and is fairly rich in mineral salts. For the preparation of a squash from this pulp, the following recipe has been standardized:

Pulp	10 lbs.
Sugar	10 lbs.
Water	10 lbs.
Citric acid	6.3 oz.

The squash could be preserved with 350 p.p.m. SO_2 , but it loses most of the freshness of flavour during about 3 months' storage.

Wood Apple

It is quite a rich source of pectin which has been obtained in a solid form. The pulp of the fruit has also been used for the preparation of wood apple jelly and syrup, by the usual methods. In the preparation of the jelly, the pulp is boiled with water sufficient to cover it, for about 45 minutes. The extract is separated, clarified by decantation, tested for pectin content as usual and boiled to the jelling point.

(221 F at sea-level) with the addition of a requisite quantity of sugar. For the syrup, hot extract prepared as above preferably a 'cold extract' is used. In cold extraction, the fruit pulp is mashed in presence of added water (1 to 2 times) and the extract separated by squeezing through cloth. Sugar is added to this extract in the ratio of 1:1 to 1:2 depending upon the acidity of the extract, to get the syrup. This can be preserved with sodium benzoate (0.1 per cent).

MINISTRY OF FOOD AND AGRICULTURE

JAISALMER HOUSE

New Delhi, December 6, 1954.

DR. PANJABRAO S. DESHMUKH,

Minister for Agriculture,

Government of India.

MINISTER FOR AGRICULTURE'S CIRCULAR LETTER
NO. XV.

MY DEAR FRIEND,

On the 1st of November I broadcast a talk on 'Gosamvardhan' from the All-India Radio (Appendix I). These celebrations were started in 1952 as a result of a decision taken by the Central Council of Gosamvardhan which was organised in that very year. It is gratifying that the week is celebrated fairly enthusiastically throughout the whole country, and, on the whole, the approach of the people towards this important question has been constructive.

2. The people preaching and agitating to ban cow-slaughter by law ultimately decided to try their strength with the Government and resorted to *satyagraha* in many places during the last two months. From what I have been able to see and know of this *satyagraha*, it appears to me that there was very little genuine support behind it. It is fairly patent that many of these people want to make a political capital out of this movement. Unfortunately, many people are still under the wrong impression that there is a tremendous public support behind this demand. I think the failure of the *satyagraha* makes it clear that this is not correct. Indeed, this would be contrary to our assessment of public opinion in India. In spite of illiteracy, poverty and backwardness, the Indian public opinion is sensible at the roots.

3. It is very well to have a sort of religious sympathy for cow-protection and abhorrence for cow-killing; one can understand it. But there is also another side to it, namely, the preservation of the better cattle, saving of fodder now wasted on useless cattle, and the extensive and real danger to crops from stray cattle. Now, I make bold to say that

although excited by momentary religious frenzy, some cultivators may probably lend a loud but mostly passive support to the anti-cow slaughter movement, they could be educated into the more sensible and practical view that it is neither religious to prolong the agonies of the useless and decrepit cattle, nor helpful to progress to make a fetish of such a matter which is ruinous to the preservation of crops, and, therefore, resulting in reduced production of agricultural produce. I am told that the cultivators of Punjab hardly countenance such moves.

4. It is a fact that there are numerous areas all over India where the threat to growing crops from stray cattle is so great that hundreds of acres of land which could have produced excellent crops are lying fallow. There are many areas where a second irrigated crop is easily possible, but by the time the main harvest is over, all cattle in the village are let loose, with the result that a dozen green spots round about a village cannot be protected economically. Nor is it possible to get higher yields of milk unless the number of cattle bears a proper proportion to the amount of fodder available, because no cow or buffalo can yield more unless it is fed properly.

5. I think, this is, therefore, a good opportunity for us to try to educate the public mind in the right direction and not allow our own opinions to be influenced by any wrong notions. I have no doubt whatever that the way in which we wish to deal with this problem is the more sensible one, and if we cast off a certain amount of hesitation to speak plainly on this issue, and make it a point to place before the people the correct standpoint, we should be able to convince many people how unfruitful the movement of trying to secure the results by a mere legal ban on cow-slaughter would be.

6. A certain amount of courage to face adverse but ill-conceived public criticism is, in my view, a national asset, assiduous cultivation of which would serve a high purpose. Because, unless we have a body of people who are prepared to bear the brunt of intrinsically unsound criticism, it will be difficult for sensible and beneficial points of views to prevail. I attach much importance to this, because it is only in this way that we could cure our public life of hypocrisies and discourage pursuits of wrong movements and policies. I go so far as to say that had we tried to face the issue somewhat boldly, the whole thing may have been different and the move nipped in the bud a long time back. Probably the matters may not have gone so far at all.

7. When I happened to go to Malegaon in Nasik District (Bombay State) on the 4th November, 1954, I had the opportunity of seeing three excellent plots of cultivation by the Japanese method. The first one which was situated just outside Nasik City was by Shri Vinayak Purshottam Vyashampayan. He has experimented according to the Japanese method in a very systematic way and the results achieved were most satisfactory. But what I saw the next day was still more impressive inasmuch as it was a co-operative effort on a fairly large scale. Some 63 cultivators had practised the Japanese method on one plot of 73 acres in the village of Khakurdi, about 10 miles from Malegaon. The crop was in excellent condition, and the people not only of that village but of the surrounding area were most pleased with the performance. A large crowd of nearly 15,000 people with over 3,000 women had assembled together to meet me and show me the plot repeatedly shouting "Japanese Method *ki jaya*". All those whom I put the question admitted that they had never seen such a crop before, and they expected an average yield of 50 maunds per acre at least. In this area nobody ever got more than 20 maunds as the maximum. This was, of course, a late variety, which should have taken about three to four weeks more before the crop could be harvested. At a nearby village I also saw another plot belonging to a progressive farmer who had also achieved excellent results.

8. My original plan was to go from Malegaon to Hyderabad for attending the meetings of the Indian Central Oilseeds Committee. But I had to cancel that programme as my presence in Delhi was necessary and so I sent the speech I had prepared for this meeting to be read at that meeting. It is attached herewith as Appendix II.

9. In my last letter I had referred to the fertilizer figures that I had obtained in Tokyo about Formosa and South Korea. The consumption of chemical fertilizers in these two countries is as follows:—

Consumption of Nitrogen, Phosphorus and Potassium in South Korea.

Kind of fertilizer	Quantity in metric tons.	Elements	Contained metric tons.
Nitrogen	4,50,031	N	94,528
Phosphorus	98,366	P ₂ O ₅	19,673
Potassium	4,425	K ₂ O	2,655
Total	5,52,822		1,16,834

Estimated amount of fertilizers used on paddy in South Korea.

Kind of fertilizer	Quantity in metric tons	Elements Contained metric tons
Nitrogen .	2,21,563	46,528
Phosphorus .	19,259	4,052
Potassium .	404	242
Total .	2,41,226	50,822

Consumption of chemical fertilizers for rice in Taiwan (Formosa).

Year	Metric tons	Year	Metric tons
1945 . .	1,958	1950 .	2,32,243
1946 . .	4,181	1951 .	2,80,001
1947 . .	59,446	1952 .	3,61,623
1948 . .	63,907	1953 .	3,77,601
1949 . .	1,00,844	1954 .	4,66,900

(One-fourth of the production is indigenous supply, the rest imported from U.S.A. and Japan).

10. The area under rice in Korea varies between 2,280,000 and 2,700,000 acres, i.e., less than 1/30th of India. and in Formosa from 1,952,000 to 1,977,000 acres, i.e., about 1/40th of India. As against this, consumption of fertilizers in India for the last few years has been as follows:

Year	Sulphate of Ammonia	Superphosphate
1950 . .	2,72,176	Not available
1951 . .	2,93,353	43,311
1952 . .	2,76,258	28,705
1953 . .	4,26,584	50,000
1954 . .	5,50,000 (estimated)	1,00,000 (estimated)

If we compare these figures for all crops in the whole of India with those given above, we will, I think, be able to judge what progress remains yet to be made in this direction.

11. While in Tokyo I met the President of the Central Commercial Company, Ibaraki, Osaka-Fu (Japan) with whom I have been in correspondence for some time. He has sent me a copy of a "Wave Shaped Rice Cultivation Method", which is described in Appendix III. I had some time back asked this Company to send me 2,000 copies of their useful Bulletins on the Japanese Method, and these copies would be made available to you as soon as they arrive here. They are on their way. I think there is much sense in what has been described as the "Wave Shaped Rice Cultivation Method", and I would, therefore, draw your pointed attention to it, so that it might be tried on some plots by way of experiments and demonstration.

12. On the 21st November, there was in Rangoon a special meeting sponsored by the Food & Agricultural Organisation of the United Nations. It was held with a view "to rectify the problem of surpluses and demand in the world rice market." The meeting which concerned itself with the economic aspects of the rice industry, was attended by delegates from 16 Member-countries and 11 Observers from the World Bank. The meeting opened on November 11 at Rangoon. The meeting came to the conclusion that the immediate problem facing the world rice market was one of surplus in relation to effective demand. The meeting resolved that—

- (i) the solution to the rice problem depended right now on "the flexibility and speed with which both exporters and importers adapt themselves to changed circumstances", and that
- (ii) "in the long run exporters and importers alike can benefit greatly from greater stability in the world's rice markets, or at least reduction of excessive instability in the world market for this most important of all food commodities."

To achieve this end a twelve point programme was recommended, *vide* Appendix IV.

13. Since it was high time to decide upon the requirements of fertilizers for the next year, as well as its prices and methods of distribution, a meeting of State representatives was held in the Ministry of Food & Agriculture, on 22nd November, 1954. Since I attached considerable importance to this meeting, I expressed a desire to address it. In my address I pointed out the importance of the use of fertilizers for greater production and said that almost every country I knew of has increased its average production

very substantially by the larger use of fertilizers. It was quite apparent that Indian cultivators were getting fertilizer-minded as was clear from the fact that I had received a number of letters from Ministers in the States complaining against insufficient supplies of ammonium sulphate. I therefore suggested to the meeting that they should take full stock of the situation and prepare their estimates more realistically and not in a pessimistic manner as was done in the past.

14. "When we made our estimates for the current year, there was a tendency to discount my optimism; the result was that we were stranded for want of the necessary quantity." I expressed a hope that this would not be repeated and that along with ammonium sulphate greater use would be made of superphosphates also. I then referred to a deputation of the manure distributing firms and manufacturers of superphosphates who had told me that although the prices had now gone down from Rs. 240 per ton to Rs. 180, they thought there was possibility of further reduction if there could be reasonable certainty of a full off-take of this fertilizer. Learning from our experience of the creation of a demand for ammonium sulphate in 1954, they were thoroughly hopeful that with a little attention by the Ministry of Food & Agriculture, and the State Departments of Agriculture, almost the whole production of $2\frac{1}{2}$ lakh tons could be utilized by the farmers. I therefore made a special appeal that we should take every possible advantage of the manufacturing capacity of these plants and see that we utilize the largest amount of superphosphates. I pointed out also that in many places a ratio of 2:1 between the ammonium sulphate and the superphosphate was considered highly beneficial. If we do this, I felt sure the prices could be brought down still further.

15. I then referred to my old idea propounded some five years ago as a Member of the Standing Advisory Committee of the Ministry of a drive to collect every possible bit of bone available in the country. On that occasion some of the officers of the Ministry were not prepared to accept the suggestion because they thought there was not sufficient demand. "I am glad", I said, "most people were now prepared to revise their ideas about the demand", and I, therefore, invited all the State representatives to do their best in this matter. I feel certain that a drive to collect all bones and see that they are crushed either in the digesters introduced by the Village Industries Board or by other method would succeed in making available to the cultivators very large quantities at much lower prices. When I went

to Nabha the other day, I was glad to find that the PEPSU Government has already initiated a move in this direction and they are very hopeful that they will achieve good results. Minutes of the meeting are attached as Appendix V.

16. I am sure you must have heard of the Russian Agricultural Exhibition. Quite a few Indian representatives, including Shri M. V. Krishnappa, Deputy Minister, Food, Government of India, Dr. Sikka and some others who are connected with the Ministry of Agriculture, have also seen it. It is likely that they would make some reports available to us, which may in due course be circulated with these letters to you. But here is a brief account of what achievements the Russian Assistant Director of Agricultural Exhibition, Mr. D. Troshin claims for it: *Vide* Appendix VI. This description serves to give us an idea of how big it is.

17. As you know, we appointed some time back six Campaign Officers. One of them has sent me an interim report of the work done and results achieved on sugarcane cultivation. It is quite apparent that even this *ad hoc* attempt to undertake this campaign and propaganda are likely to yield amazing results. I am about to initiate this sugarcane campaign for the coming sugarcane sowing season in right earnest shortly, so as to indicate and describe all the steps of better cultivation. Some literature is almost ready for distribution, and I also propose to speak on the radio about this without delay. I hope you will give this matter every possible publicity and see that we achieve maximum results in obtaining better yields of sugarcane in your State next year. A copy of the Tour Note of the Campaign Officer is attached as Appendix VII.

18. I am also attaching a note prepared by Shri S. C. Roy, Agricultural Extension Commissioner (Appendix VIII) giving a brief history of the Japanese Method of Paddy Cultivation and the results achieved in the year 1953-54, together with a copy of an article (Appendix IX) I have contributed to the All-India Congress Committee's publication on our food production.

19. As you may remember, we imported four Russian tractors, two of which are being tried in Delhi and two in Bhopal. The Russians have sent their own technician to supervise these tests. I am attaching herewith a brief preliminary note on these tractors by Shri R. V. Ramiah, Head of the Division of Agricultural Engineering in the Indian Agricultural Research Institute, New Delhi (Appendix X).

20. On the 26th of November I delivered a speech of welcome to the President, Dr. Rajendra Prasad, when he presided over the Eighth Session of the Conference of the Society of Agricultural Statistics in New Delhi. The President made a pointed reference to the success of the Japanese Method and suggested that the Society may undertake the study of the question whether smaller holdings yielded better crops or the larger. I attach herewith as Appendices XI and XII, both mine and the President's speeches, together with a summary of the report (Appendix XIII) read out by Dr. Panse of the work of this important Society.

21. We have already been recommending the Japanese hoe as well as another small implement which we have evolved for use in paddy fields. It is not unlikely that the importance of the use of this hoe as well as of weeding and mulching is not fully realised. When Dr. Pawar, the Rice-Breeder, Hyderabad Government was with me in Japan, he gave me an idea of the utility of this hoe and the scientific value of the operation. I am reproducing in Appendix XIV an article by him. The main subject dealt with in that article which was published in "Kisan" (an organ of the Hyderabad Farmers' Union), of November 1954, deals with the importance of green manuring as well as the utility of the small rotary weeder modelled on the Japanese hoe.

22. Chaudhry Brahm Prakash, Chief Minister Delhi State, has sent me some interesting information (Appendix XV) about the utilization of the sewage and sludge manure in Delhi State. I think it would be of interest to all my readers and it may also probably provide an incentive to practise the same on as large a scale as possible wherever we can.

23. This month also saw the birth of two State Farmers' Organisations,—one in Punjab and the other in PEPSU. I was happy to be able to attend on both these occasions. I am glad to say that the general approach of everyone present was, as it should be, definitely constructive, and I have, therefore, no doubt that wherever such attempts are made, there will be no desire on the part of anybody to insist upon making it either a political body or one which would be exploited as a mere mass movement.

24. As I said in my last letter, for the full setting up of an organisation of the Farmers' Union for the whole of India, I have naturally to wait for these State Organisations to come up, but since we cannot afford to lose time, we have decided to organise a Farmers' Forum with a very

brief and a provisional constitution together with a group of selected persons to take up the preliminary work. I commend this to your attention and I would be glad if you could take necessary steps for popularising and organising the same in your State. If we are successful in this move, we will not only create the necessary back-ground for a good organization, but would be able to prove to the people what benefits and advantages they can expect from even a semblance of an organization. I think I will be able to get the co-operation of all concerned for this move. A brief statement of the Objectives and the few rules framed for its provisional guidance are enclosed as Appendix XVI and XVII.

25. I came across certain interesting bits of news items in the Agricultural Information News-letter issued fortnightly by the Department of Agriculture and Natural Resources, Manila, Philippines. It indicates certain lines of action by the Government of Philippines which, I believe, it would be interesting to read. (Appendix XVIII).

26. Recent research work in the Silviculture Branch of the Forest Research Institute, Dehra Dun, has shown that *Loranthus*, a destructive parasite which causes widespread loss or damage to valuable timber and fruit trees in India like teak, gamarig, wattle, sal and mango, can be effectively controlled by injecting into the attacked trees small quantities of chemicals, like copper sulphate and Fernox-one.

27. The method of treatment is extremely simple. Bore-holes three to four inches deep are made with a carpenter's auger at the periphery of standing trees all round their stems. These holes are spaced about 9 to 12 inches apart. The chemicals, either $\frac{1}{4}$ ounce per hole of powdered copper sulphate crystals or $\frac{1}{32}$ ounce of Fernoxone powder, are introduced into the holes. The holes are thereafter filled up with water and the openings closed with some wet earth. After a few days, the *Loranthus* bushes drop and gradually die off. If the action is too slow, the treatment should be repeated, making fresh holes which alternate with the old ones but injecting only half the quantity of the first dose. *Loranthus* takes from two to six months to die by this method.

28. A co-ordinated scheme for the survey of indigenous agricultural implements was sanctioned in 19 States (Madras, Uttar Pradesh, Punjab, Bombay, Assam, Madhya Pradesh, West Bengal, Bihar, Orissa, Hyderabad Deccan, Madhya Bharat, Mysore, Rajasthan, Travancore-Cochin,

PEPSU, Coorg, Himachal Pradesh, Bhopal and Vindhya Pradesh) for a period of one year with effect from 1st April (vide I. C. A. R. letter No. 5(3)/53-AII, dated 4th March, 1954), in pursuance of the recommendations of the Conference on Agricultural Implements and Machinery held in 1953. The Council agreed to bear the entire cost of this scheme as a survey of the existing indigenous agricultural implements was urgently needed before any research work on the improvement of agricultural implements could be undertaken. In his D.O. letter No. 5(12)/54-AII dated 28th June, 1954, Shri K. R. Damle, Vice-President, Indian Council of Agricultural Research urged all the State Governments to complete the survey within the specified period (i.e., during 1954-55) as any delay in the execution of this work would result in consequent delay in instituting measures for effecting further improvements in selected agricultural implements. It has, however, been observed from the progress reports received so far that the work has not yet been initiated in any of the States except Bihar, Madhya Pradesh, West Bengal, Madhya Bharat and Bhopal. Since the Planning Commission also attaches considerable importance to the work of effecting improvements in existing agricultural implements which can be undertaken only after the results of this survey are available, I trust you will take effective measures to ensure that the work of the survey is speeded up and completed before the end of the current financial year.

29. As you are aware, the State Governments organise Crop Competition fortnights twice a year in order to give wide publicity to the Crop Competition Scheme for enlisting the maximum number of participants. The rabi-sowings 1954-55 will be commencing shortly, and it is necessary to launch a vigorous campaign as usual for enlisting the cultivators for Crop Competitions in respect of the important rabi crops. The Indian Council of Agricultural Research has sent an official letter to the State Governments for organising the rabi crop competition fortnight in the first fortnight of December, 1954. It is not necessary to adhere to the period suggested and the State Governments are at liberty to modify it to suit local requirements.

30. As mentioned in one of my previous letters, in addition to the individual cash prizes of Rs. 5,000/- each and a certificate of Krishi Pandit to be awarded to the farmers obtaining highest yields at the all-India level in respect of the six selected crops, viz., paddy, wheat, potato, gram jowar and bajra, the Government of India have sanctioned a scheme for the award of community prizes. Under this

scheme a prize of Rs. 5,000/- will be awarded to the 'best tehsil' in each State which secures the highest number of entries for crop competitions among all the tehsils in the State. The prize money will be utilized for the general benefit of the cultivators in the 'best village' which has contributed most to the crop competition efforts in bringing its tehsil to the topmost position, by constructing a school building, a seed-store, a cattle-shed or a library etc. A further prize of Rs. 10,000/- has been sanctioned for the 'best tehsil' securing the first position in the whole of India with regard to the number of competitors at the competitions held at the tehsil level in the various States. This amount will also be utilized for the general benefit of the Community in the tehsil. The scheme also provides for the award of medals to the tehsil and district officials to engender enthusiasm in them.

31. What is the potentiality of the Community prize scheme can be judged from the following: According to the procedure laid down, a State can qualify for the Community prizes competition, if at least 5 per cent. of the villages in the State enter the Crop Competitions. If, say, 24 States in the country participate in the Community Prizes, it is expected that about 29,000 villages will come under crop competitions. If on an average, 20 cultivators from a village participate in the competitions; the number of participants will be about 5,80,000 in 24 States. This means that at least 5,80,000 acres of land will be under Crop Competitions. Taking an average extra yield of about 5 maunds per acre, it is expected that about 29 lakh maunds of extra grain would be added to the country's production. This estimate applies to the first year and is likely to increase in subsequent years when this scheme becomes popular. The success of the scheme will, however, depend on the extent of effort put by the State officials, and I am confident that your personal interest in the matter will go a long way to enthruse them to put in their maximum efforts in this direction.

32. It is a known fact that the organization of Crop Competitions has helped the farmers in following improved methods of agriculture. It has infused a healthy spirit of competition in the farmers, resulting in larger production in the field of agriculture. Its contribution towards solving the difficult problems of food self-sufficiency in the country has been no less than the other measures adopted in this direction. It is, therefore, important that there should be no slackening of this campaign. From the reports received from the State Governments, it is observed that

only three States organised State level competitions in respect of gram crop during the Rabi season 1953-54. Gram is an important food crop grown in most of the States, and I would request that greater attention should be given to this crop during the current season in the matter of organising crop competitions.

33. As you are aware, it is my ambition that our target of bringing one crore acres of land under Crop Competitions is achieved within the shortest possible time. Your personal interest in the matter will, I am sure, infuse zeal and enthusiasm in this campaign of national importance. I would, therefore, request you to issue necessary instructions to your officers for giving wide publicity to the prizes awarded to the State as well as the All-India levels and to enlist the maximum possible number of competitors.

34. Appendix XIX is a brief note received from the Sugarcane Breeding Institute, Coimbatore, on "Logging in Sugarcane", and Appendix XX on "Tundu Disease of Wheat". I have no doubt the notes will receive every attention at the hands of your officers.

35. One of the recommendations of the Conference of the State Ministers of Agriculture and Co-operation held in September 1953, emphasised the need for contact between farmers and Agricultural Research Institutes. I am glad to be able to state that in pursuance of this recommendation, a Farmers' Week was observed at Barrackpore from 26th September, 1954, under the auspices of the Jute Agricultural Research Institute of the Indian Central Jute Committee, with a view to demonstrating the technical "know-how" of jute cultivation. 2,000 jute growers assembled at the inauguration of the Week on 26th September, 1954. Improved methods of jute cultivation and extraction of fibre were explained at the inauguration of the Week. The importance of double cropping of jute and paddy was emphasised as the research at the Institute had shown that the farmers could profitably take both the crops together. The week provided an excellent opportunity to the research workers and the cultivators to know each other's problems.

36. The base year of the First Five Year Plan for rice production target is 1949-50, when the production of rice crop in the country was estimated at 23.2 million tons. The Plan envisaged an additional production of 4 million tons during the Plan period. Thus, the target of total production of rice at the end of 1955-56 works out to 27.2 million tons.

The area and production of rice in India since the commencement of the Plan in 1951-52 are as under:—

	Actual				Planned
	1949-50 (Base year)	1951-52	1952-53	1953-54	1955-56
Area (million acres)	75.4	73.7	74.2	76.6	80
Production (million tons)	23.2	21.0	22.5	27.1	27.2

If the total additional production of 4 million tons in five years were to be evenly distributed, the target of production of rice in 1953-54 should have been 25 million tons but the actual achievement was higher at 27.1 million tons. In fact, production of rice in 1953-54 almost equals the target of 27.2 million tons envisaged at the end of the Plan period, i.e., in 1955-56. The production of 27.1 million tons of rice in 1953-54 is an all-time record for India. A statement giving area and production of rice State-wise since 1949-50 is appended, (Appendix XXI). Comparisons of yields are revealing. It also indicates the part played by the Japanese method, especially in Bombay, West Bengal and Hyderabad.

37. Appendix XXII gives a letter from Shri Thimma Reddy of Andhra and my reply to him dated the 2nd of December, on agricultural publicity, and Appendix XXIII contains other information and letters received from States. I think it will interest you to read my note dated 10th November, 1954, on the mounting of campaign which contains a note given to me by one of our Campaign Officers. This is Appendix XXIV. The proposed meeting was held on 26th November, 1954. The outcome would be known in due course.

Yours Sincerely,
(Sd.) P. S. DESHMUKH.

To

Ministers of Agriculture,
Cooperation, Animal Husbandry etc.
(all States in India).

APPENDIX I

BROADCAST DATED THE 3RD NOVEMBER 1954 OF DR. PANJABRAO DESHMUKH, MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA DURING GOSAMVARDHANA WEEK:

It gives me great pleasure to speak to you during the 'Gosamvardhana Week' this year again. My mind goes back to 1952 when a few months old Central Council of Gosamvardhana decided to observe the festival of 'Gopashtami' as Gosamvardhana Day with the aim of generating a mass awakening throughout the country for the need of developing India's cattle-wealth on proper lines. Even the most optimistic member of the Council talked with some reserve and hesitation about the result of the proposed countrywide celebrations which were to be planned and arranged in a great hurry. And when in that year I appealed to the men and women of the country to participate in the Gosamvardha celebrations, little could I imagine that the States would respond with such a spontaneous enthusiasm. Indeed, the success of the first celebrations was so encouraging that early in 1953, the Central Council of Gosamvardhana adopted the proposal of making Gosamvardhana celebration a permanent feature of our national life and decided that the whole week from Govardhana to Gopashtami should be celebrated as Gosamvardhana Week. It was also decided that more stress should be laid on village-level celebrations and an attempt should be made to carry in some form or the other the message of Gosamvardhana to every home and hamlet in the country. Thus in the galaxy of a large number of religious, social and national celebrations a new national week was added which has in the short space of two years caught the imagination of the people.

2. The second year's celebrations, in 1953, were planned on a wider scale under the auspices of State Governments, State Federations of Gaushalas and Pinjrapoles and thousands of other organizations. Public attention was focussed on every phase of cattle development. Cow conferences, cattle shows, exhibitions of cattle feeds, dairy equipment and improved methods of management of cattle and prevention of diseases, radio talks, demons-

trations, posters, film shows all formed part of one planned programme organized on a country-wide basis. The work of prevention of diseases was given a great impetus during this week as inoculations against rinderpest and other contagious diseases were carried on a mass scale. Castration of unapproved bulls was another battle-front. In addition to this, the free distribution of stud bulls followed by many other facilities required by the stock owners was a high-light of the programme all over the country. It is still more noteworthy that men of all walks of life, from the Governors and Ministers to the humblest cottage dwellers, enthusiastically participated in these celebrations. Indeed, as I address you today, I do not feel any necessity of appealing to the people to participate in the Gosamvardhana celebrations, rather I confidently rejoice and invite all of you to share this joy with me that in the whole of India, in towns and villages, men and women of all ranks are observing this week as a national festival with a full sense of the importance of cow in our National life.

3. The role of cow in our national economy can never be sufficiently reiterated. From the earliest dawn of history, the cow has been the most inseparable companion of our people through political upheavels, religious upsurges and dynastic rises and falls. From the Vedic Rishis to the present day poets and philosophers all have sung her glory. Our Vedas and other scriptures are full of hymns and verses enjoining Goraksha and Gosewa as our duty.

4. Today, we hear of great multi-purpose projects and plans, but there can be readily nothing more multi-purpose than the cow itself. She is not only the main and the best source of the most essential human food, the milk, but is progenitor of the bullock on whose shoulders rests the infinite burden of cultivating our land. Then the farmer wants to transport large quantity of manure to his fields, he wants to irrigate his crops, he wants to thrash the corn, he wants to take the harvest to the markets and he wants to send his family to distant villages and towns. He is puzzled at his limitations and the colossal work before him, but the bullock standing by him again whispers a word of reassurance and undertakes to do all the jobs only for a mouthful of grass and a bucket of water. There is no off season or off day for the bullock.

5. India possesses about one-fourth of the total bovine population of the whole world. Instead of being a matter

of pride, this huge stock of cattle is becoming a problem, for no country ever possessed such poor and uneconomic cattle as India does today. In spite of our huge cattle population there is acute shortage of both draught power and milk. Tens of millions of our cows and bullocks are virtually moving quadruped-skeletons, who form the greatest single strain on the already meagre economic resources of the country. As India's Prime Minister, Shri Nehru, pointed out during the course of his inaugural address at the conference of State Ministers of Agriculture in September, 1953, cattle are worshiped in India still their condition is much worse than of the western countries, where no sentiment exists for them. Cattle in those countries are fed, kept and managed with much greater labour, care and love than we do in India. Real cattle worship means devoted day-to-day attention for the well-being of cattle and bringing up each calf into a strong useful animal by adopting proper methods of breeding, feeding and management.

6. Our problems are many and the task is big and by no means easy. The average annual milk production per cow is estimated to be about 8 maunds only and even this is on a downward path due to scarcity of fodder and feeds. The fodder available at present is sufficient for only two-third of our cattle and the concentrates can satisfy only one-third of them. Added to this is a great shortage of food stud bulls. Indiscriminate breeding has resulted in multiplication of non-descript types. The number of uneconomic cattle has increased which are let loose by their owners. These cattle cause damage to crops and unless they are segregated they will continue to be a burden on our available meagre resources of fodder and feeds.

7. If we can solve these problems and can improve our vast cattle population, our increased resources in milk and motive powers will go a long way in insuring against want, hunger and privation. The Central Council of Gosamvardhana established by the Central Government with a view to co-ordinating the activities for cattle development has to this end formulated a number of schemes. The Central Government has started a Key Village Scheme for the development of cattle in the country. This scheme was launched some three years back and has gone sufficiently ahead towards the targets laid down. A Key Village centre is a compact area of contiguously located villages having a population of about 500 cows and or she buffaloes

of breeding age selected for intensive cattle development activity. The scheme envisages the tackling of the problem in its various aspects, viz., feeding, breeding, disease control and marketing. In the areas selected for development all undesirable male cattle are castrated and approved bulls are located. Thus in course of time a new generation of good cattle will be available for extending the area of the Key Village and for establishing new centres. As against a target of 600 such centres fixed for the first Five Year Plan 450 have already been established in various parts of the country. With a view to taking advantage of the latest scientific developments in the field of cattle improvement the technique of artificial insemination is also being popularised in the country under this scheme and already 140 artificial insemination centres have been established.

8. A plan of cattle development is not complete unless it makes adequate provision for the elimination of useless and unproductive cattle. It is more essential in a country like ours where the number of such cattle is large and the usual means of their elimination prevalent in other countries are not available. Provision has been made for the removal of such cattle to Gosadans to be established in interior forest areas where plenty of grazing and other grasses are available without much cost. There are of course certain inherent difficulties which are being experienced in the working of this scheme. There is a general reluctance on the part of the owners of unproductive animals to hand them over to Gosadan authorities free of cost with the result that even such Gosadans which have been established so far could not be filled to capacity. The non-availability of contiguous blocks of forest land suitable for establishment of Gosadans is another difficulty. It is, however, hoped that with the co-operation of the public it would be possible to have a larger number of Gosadans in course of time.

9. We further find that Gaushala institutions in our country which are estimated to be about 3,000 in number maintaining over six lakhs heads of cattle at an annual expenditure of nearly seven crores offer a good scope for cattle development. These institutions have sufficient resources in the form of buildings, land and finances. What is needed is some guidance to put their working on proper lines. When properly organized these institutions can be useful centres of milk production and meet the requirements of the neighbouring towns. They can also take up the work of improvement of cattle and

bull production and can supplement effectively the Government's efforts in this direction. I am glad to observe that certain institutions have already undertaken their re-organisation and started working on improved lines. The Central Council of Gosamvardhana has taken up several schemes for the improvement of gaushalas in the country.

10. In the end I must say that we should not forget that cattle improvement is a slow process and the work done can be counted only in generations and not in years. It will take four to five cattle generations before the results of the plan can make any definite impression. This of course does not mean that we can take things in a leisurely manner. Rather the contrary.

11. India, is, today, engaged in a strenuous war against want, privation and poverty. In order to be victorious in this grim struggle we have to put Gosamvardhana amongst the foremost battle-cries of the land.

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APPENDIX II

SPEECH BY DR. PANJABRAO S. DESHMUKH, MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA, AT THE ANNUAL GENERAL MEETING OF THE INDIAN CENTRAL OILSEEDS COMMITTEE ON THE 6TH NOVEMBER, 1954.

I am very sorry events have again conspired to deprive me of the pleasure of meeting you at the meeting of the Oilseeds Committee on this occasion also. The result is that I have not been able to meet this Committee even once, although I have been in office for over two years now. I hope, however, that you will not feel my absence in view of the presence amongst you of the Chief Minister, Hyderabad State, Shri B. Ramakrishna Rao, and the Minister of Agriculture, Dr. M. Chenna Reddy.

2. There can be no doubt that both these friends of mine are vitally interested in the work of this important Commodity Committee. I am sure the members of the Committee will derive all the necessary inspiration from them, because Hyderabad is a very important oilseeds producing area. Of the major oilseeds, it produces castor as well as groundnut in appreciable quantities. The interest of the State Government in oilseeds is, therefore, natural not only so far as developing the cultivation is concerned but also in the marketing of oilseeds and their products.

3. Last year, in my speech, I had expressed the hope that the target of 55 lakh tons of oilseeds fixed under the first Five Year Plan will not only be achieved but will be surpassed. Happily enough, the year 1953-54 presented a very bright picture of oilseeds production. Side by side with an appreciable increase in the production of food-grains, the oilseeds production also rose to 56 lakh tons. So the original target has been exceeded one year before the Plan period. This satisfactory position is, no doubt, partly due to good rains and favourable seasonal conditions. I however consider the increase very significant when I compare this figure with that of the previous years. During the base year (1950-51) 50.7 lakh tons of oilseeds were produced. In the first two years of the Plan, production remained below this level but in 1953-54 it rose to 56 lakh tons, resulting in a substantial increase not only over the two previous years and the base year but also over the target figure.

4. This achievement cannot be attributed wholly to good seasonal conditions. It has been possible to a considerable extent by the closer contact we have been able to establish with farmers and various other steps taken by us. Closer contact with the producers, however, is by itself an important factor for greater production in all cases and whether we refer to the First or Second Five Year Plan, we must not forget that India has, perhaps, the lowest yields per acre not only in many food-grains but in oil-seeds also. I am sure, therefore, that your Committee will take ample measure to popularise among the cultivators the various improved seeds and methods evolved in agricultural research farms. This step alone could add to production adequately, and there should be no difficulty in achieving the target of the Second Plan, which is expected to be fixed at 67 lakh tons long before its due date. Indian Central Oilseeds Committee will be expected to organise measures for achieving this target, and I hope these measures will receive your attention well before the Second Plan starts working.

5. I need hardly remind you that a veritable miracle lies in the palm of our hands. What we did with paddy, can be, I repeat, done with every one of our other crops without exception. It is amazing how little we used the expert knowledge in the paddy campaign. In fact, many of the experts are still unaware of the facts, and, therefore, almost altogether unaffected. A little commonsense has taken us further than all the researches put together. But you should not misunderstand me to mean that I do not value breeding, research or the experts. In fact, it is my contention that we have far too little of it all. Whether we look at Japan or at Russia, we have a long way to go to make our breeding programmes and research centres adequate to the needs of the country. And yet, there is a good deal we can do by selecting a few outstanding items, which definitely benefit better production. I would, therefore, like you, before you disperse, to send to me, as a result of your expert collaboration, the main steps that you would advise the agriculturists to take together with any quick action that you would suggest should be taken by the Central and the State Governments. We have no time to leave things to be discovered in a mass of literature and notes that you produce and ponder over. Let us separate quickly grain from the chaff so as to fix our attention on definite items and objectives. I attach to this matter the utmost possible importance because a partial campaign started long after sowing of sugarcane is showing a bright promise of rich dividends.

We have thus not the solitary example of paddy but one more definite instance of the response to fertilizers and better cultivation in respect of sugarcane also. I had suggested to the Coconut Committee to have a similar plan in the same direction and I make the same appeal to you.

6. A serious attempt at the introduction of the Japanese Method of paddy cultivation in India was started by me only on 7th January, 1953. This introduction, I claim, has revolutionized Agriculture in India and nothing less. It is not possible that this revolution is going to be confined to the limits of India alone. It is bound to spread to at least all the Asian countries which have yields not very much better than those of India. This item, therefore, is a matter of new hope and a complete regeneration of agricultural production. At the International Rice Commission's meeting, I spoke in these very terms, and since it was based on facts, there was no one who doubted or questioned it. All that we have, therefore, to do in respect of other crops is to work ceaselessly with a clear-cut and a definite programme, and you will find that you would be able to achieve within years which other countries have taken decades to do. If you will take my counsel and chalk out a programme, the Oilseeds Committee would be entitled to covetable laurels in a short time to come. Otherwise, I regret to say the proceedings of these Committees become rather humdrum and of little practical interest, because, even if you pass good resolutions, they take long to materialize and hardly ever have they been translated into any dynamic action. Here also, I would like to say that I do not belittle the work done by either this Committee or others, but what I say is that if we could give our farmers a clearer lead, much more could be achieved with comparatively less effort.

7. We have to increase our production of oilseeds not only for providing more oil for home consumption, but also for our export trade. India has always occupied a very important position in the world trade of oilseeds and oils. In recent years, our policy has been to encourage export of oils, for obvious reasons. As you may be aware, export of oils and oilseeds declined considerably in value from Rs. 32.6 crores in 1952-53 to Rs. 8.5 crores in 1953-54. Export of linseed oil was unsatisfactory due to big disparity in India and foreign prices. There was a sharp decline in the export of castor oil also. The export of groundnut oil was not allowed due to high internal prices and to meet internal demands. The better yields in 1953-54 have, however, enabled the Government to release some

122 M. of Food.

groundnut oil and other oils for export purposes. With a view to pushing up exports, the export duties on Rape and Mustard oil, linseed oil, Kardi seed oil, Niger seed oil and cotton seed oil have been abolished. The duty on castor oil has been reduced to Rs. 200 per ton. In the case of groundnut oil, however, a duty of Rs. 350 per ton was imposed simultaneously with the release of export quota to arrest a rise in the internal prices. This has, however, been reduced to Rs. 225 per ton recently.

8. The object of my reviewing the position is mainly to stress on you the need for increasing the production sufficiently for the country to release some oil for exports after meeting our internal requirements so that we may not lose a source of valuable foreign exchange. I also find from your agenda that you are going to discuss certain matters relating to export policy and export of oilseeds and oils. I hope, while making suggestions to Government, you will keep in view the interest of the grower as unless the growing of oilseeds continues to be paying, any number of Plans and targets will not encourage the farmers to implement them.

9. Coming to the question of making Agriculture paying to the grower, one generally is reminded of the exploitation by middlemen. In this country, we have been trying to develop the Co-operative Movement since long. The primary producer as well as the consumer could help themselves through Co-operative Societies. The progress, as we know, has not been encouraging at all, even after half a century of effort. As I have said before, I am firmly of the view that no other country needs "Co-operation" more than India. With a view to ensuring a fair return to the grower through a network of primary and State Co-operative Marketing Societies, an All-India Co-operative Marketing Board is being constituted. I am sure, oilseeds will receive considerable attention at the hands of the Board.

10. I am glad to note that a comprehensive scheme to investigate the spread of price from the grower to the consumer's level has been prepared and will be considered by you today. Shri Damle has already pointed out the importance of the investigation. I would stress again that this study of what the grower actually obtains as compared to what he should, should be undertaken, at an early date.

11. Gentlemen, I wish you all success in your deliberations and hope you will please excuse my absence.

APPENDIX III

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CHOU BOEKI GOSHI KAISHA CENTRAL COMMERCIAL Co. P.O.
Box 8, IBARAKI, OSAKA-FU, JAPAN.

11th May, 1954.

SUBJECT.—“Wave Shaped” Rice Cultivation Method

Thin Sowing-Less Seeds, Fertilizer, Labor, Water and Stand Well for Noxious Insects.

Secret is wider spacing between rows and closer in lines when planting seedlings.

For Particulars see pages 7 and 8 in Third Edition of “J.R.C.M.”

Despite the fact that due to the disastrous typhoon and flood affected all over Japan and the rice crop has decreased almost half, certain paddy fields where the new and revolutionalised methods of the Wave Shape rice cultivation method was adapted the rice crop was not damaged but brought an usual good crop and rather increased. As we believe that it will surely and eventually help increase the rice production in the foreign country we strongly recommend to adapt this particular method as it only requires less seed, fertilizer, labor and water in the paddy fields and will stand well for the noxious insects and disease because, thus it will stimulate and encourage to grow seedlings more healthy and vigorous bearing the better and more grains when matured.

The secret of this particular method is to grow the seedlings with 2 or 3 paddy seeds in one spot in groupe on the nursery bed in shallow water and when they bring 3 or 4 leaves cut the roots from another groupe grown on the opposite side of rows by some kind of knife or sickle so that the roots will not mix up with another groupe which will also facilitate to take off from the bed. Special attention should be paid when transplanting them into paddy fields as follows:

1. In order to give them more space of sun-ray and the oxygen from the air to grow them very

healthy and strong, the transplanting should be done in the South to North direction in row giving a larger space between rows, say at least two feet wide, and closer in line about three to four inches apart between them so that scraping, weeding, cultivating and ridging can much easily be done than in the old method.

2. Plant the seedlings 1 or 2 groups in 1 spot in line in a slant direction and do not plant deep but very shallow, and you will be quite surprised to find how soon they will stand straight and start grow briskly.
3. 5 days after transplanting, in order to help growth of outer leaves of the seedlings the scraping of soil should be done closely to them in order to help grow their roots vigorously. This will surely stimulate them to yield more grains. It should be done in any event.
4. 10 days after transplanting, intercultivate between rows by the Weeder or Cultivator in early morning and evening not in hot day time as it is liable to hurt the roots. Give them heat in day time and keep them cool in night.
5. 15 days after transplanting, hill up the seedlings in line with soils by ridging between the rows say at least 1 inch deep in centre of rows. At this time if they are grown with 15 branches in each plant the yield will be very heavy. It is said that the ridging at this time will worthwhile just same as they were given 9 pounds of sulphate of ammonia. Because it will assist them to absorb the more fertilizer and oxygen. Repeat the ridging 20 and 25 days after transplanting covering the roots of seedlings at least 1 inch at a time so that 4 to 5 inches in depth. This will help them to grow them very strong, stout and healthy with more vigorous roots and bring a good fruit of crop of rice.

As you will see the condition of the Paddy Fields where the rice is cultivated will become same as the "Wave of Sea", so that it is called "Wave Shaped" Rice Cultivation.

THE SPACING BETWEEN ROWS AND EACH PLANTS IS THE KEY TO RAISE THE RICE CROP BIGGER

More you give the space between the rows and closer in line, more you can get the crop of rice when the seedlings are replanted in the paddy fields. The following table will show you the results:

The Table of
Crop Rice per
Acre.

Spacing between rows of Rice Plants	Spacing between Seedlings in line	Results of Harvest of Paddy Rice
1 foot 6 inch	4 inch	5424 lbs.
2 feet 6 inch	2.5 inch	8532 lbs.
3 feet 6 inch	2 inch	10184 lbs.

APPENDIX IV

SUMMARY OF THE REPORT ON SPECIAL TECHNICAL MEETING ON THE ECONOMIC ASPECTS OF THE RICE INDUSTRY HELD AT RANGOON (BURMA), FROM 11TH NOVEMBER TO 18TH NOVEMBER, 1954, UNDER THE AUSPICES OF THE FOOD AND AGRICULTURE ORGANISATION OF THE UNITED NATIONS.

The meeting was held at Rangoon from the 11th November 1954 to 18th November 1954. The object mainly was to make a periodic review of the world rice situation and other economic aspects of rice. The meeting was attended by representatives of 17 countries, including India, and an observer of the International Bank for Reconstruction and Development.

After the formal inaugural ceremony by the Hon'ble U. Kyaw Nyein, Acting Foreign Minister of the Union of Burma, Hon'ble U. Raschid, Minister for Trade Development and Labour of the Union of Burma, was elected chairman while Mr. R. S. Krishnaswamy, Head of the delegation of India and Dr. W. M. Clyde, C. M. G., Head of the delegation of the United Kingdom, were elected as Vice-Chairman. The meeting was formally concluded by the Hon'ble U. Raschid.

It was revealed during the course of discussion that unlike conditions during the last meeting held in Bangkok in 1953 when scarcity was the main problem and efforts to increase production was of vital importance, the position now was that considerable increase in production had been achieved by various countries and while many of the importing countries had achieved self-sufficiency and had either ceased to import or had restricted the same. Some of the exporting countries such as Burma, Thailand and U.S.A., particularly the former two countries, were faced with the problem of disposal of their exportable surplus held in stock year after year.

The sharp rise in rice production, which was a feature of 1953 harvest, continued in 1954 and about $8\frac{1}{2}$ million tons more or 8 per cent. were harvested than in the preceding year which was an all time record. By far the largest total increase was that obtained in India where 7 million more tons of paddy were harvested which was 20

per cent. than in the preceding year. This was considered as a significant achievement as the area had gone up only by 3 per cent. and the increased production was mainly through higher yield per acre. Cuba also had a large proportion of increase which, however, was more by the expansion of acreage. Thailand had increased 14 per cent. of its area and the production by 25 per cent. and had a large exportable surplus. Of the importing countries, Indonesia continued to reduce her imports. Similarly the position in Korea had improved after the cessation of hostilities and had stopped completely import of rice. Japan also expected a better crop than in the previous year when she suffered from exceptionally unfavourable weather and insect pests and consequently contemplated to reduce her rice imports. Malaya reaped less rice but also decided to import less, while Hongkong, where no cereals are grown, decided to decontrol rice. The area under rice in Brazil, Burma, Cambodia, Italy and Viet-Nam hardly altered but the expansion was significant in Madagascar, Pakistan, Thailand and United States. In short, as stated earlier, most of the deficit countries had succeeded to make up their deficit and had decided to follow the programme of self sufficiency and either to cease to import or to restrict the same to the utmost. Ceylon continued to remain a deficit country and had arranged to import from China some of which, however, was being sold to Japan. On the other hand, Burma and Thailand had ample exportable surpluses due partly to carry over from former crops. In this background of self sufficiency, increased production and problem of disposal of exportable surpluses by certain countries such as Burma and Thailand, the policy adopted by India to import certain quantities in spite of her self sufficiency in order to build a food reserve was considered to be a sound policy. At least this had helped Burma to recover from the low level of export in 1953.

It was also gathered that the tendency of prices have been on the decline from 1953 to 1954. The commercial price of Burma rice with 42 per cent. broken fell from £70 per ton in 1953 to £52 per ton in 1954. In Thailand, white rice with 5 per cent. broken, during the same period, declined from \$215 to \$175 per ton. In Cambodia, prices fell sharply in the beginning of 1954 but steadied and improved to some extent later. The prices in U.S.A. declined sharply since 1953 and in September 1954 were \$20 to \$40 per ton below those in 1953 and \$20 to \$30 per ton below the support prices. Wholesale prices on Indian

domestic markets also moved generally downward while Indonesian prices had fallen. Similarly price movement on European import markets had been downward.

Although exporting countries such as Burma and Thailand had maintained higher export prices compared to the domestic prices by bilateral trade agreements on government to government deals, the supply position being easier and general tendency of prices being on the decline, it was more and more apparent in the course of discussion that the problem of exportable surplus was closely related to question of a proper review of the price situation. The question of better storage and the policy of building up reserve also appeared to be vitally important in the altered situation of rice production and international trade of rice.

Detailed discussions were made on the following items during the course of the conference:—

I. Policy Developments

- (i) Production and price policy
- (ii) Marketing, grading and storage
- (iii) Rice production statistics.

II. Outlook and Prospects

- (i) Production prospects
- (ii) Consumption
- (iii) Trade problems.

After detailed discussion on each of the above items, a draft report was prepared by the special committee set up for the purpose consisting of U.K., U.S.A., India, Thailand, Burma and F.A.O. staff and the draft, together with the following resolutions, were finally adopted in the concluding preliminary session:—

- (1) That all possible steps should be taken to expand the consumption of rice, especially among the less well nourished sections of the population;
- (2) That prices should be reviewed in the light of changed conditions bearing in mind the basic interests of peasant cultivators;
- (3) Abandoning or relaxing controls and restrictions on the consumption of rice should be considered;

- (4) Production of the types and qualities of rice required in the different markets should be considered;
- (5) Efforts should be made to improve the quality of exportable rice by improving the methods of handling and storage and also by giving greater attention to grading;
- (6) That both exporting and importing countries should consider holding reserve stocks as a regular practice for steadying effect on prices;
- (7) That relaxation on restrictions on exports and imports may be considered;
- (8) That the F.A.O. might take up a comprehensive study on the various measures which might be adopted for the stabilization of international trade in rice and circulate their findings to member-governments for further consideration;
- (9) That an *ad hoc* working group on rice grading should be set up in the Far Eastern region to examine the possibility of arriving at common standards which might be adopted internationally;
- (10) That the F.A.O. should favourably consider requests from member-governments for technical assistance on the introduction of improved statistical methods, particularly for projects in which one expert can serve a group of neighbouring countries;
- (11) That F.A.O. should also consider favourably requests from member-governments for technical assistance in projects to increase the efficiency and decrease the cost of marketing and distribution of rice, or to establish improved methods of grading and quality control.
- (12) The question of further meeting was to be considered later.

From the start to the finish India succeeded to take a leading part in the deliberations and made significant contributions throughout not only in the course of the deliberations but also in preparing the draft for which a special committee was appointed consisting of representatives from U.K., U.S.A., Thailand, Burma and India.

APPENDIX V

SUMMARY RECORD OF THE MEETING HELD ON THE 22ND NOVEMBER, 1954 TO CONSIDER THE SYSTEM OF DISTRIBUTION OF CHEMICAL FERTILISERS DURING 1955.

Present:

GOVERNMENT OF INDIA

Ministry of Food & Agriculture.

1. Shri H. M. Patel, I.C.S., Secretary, Ministry of Food and Agriculture, Chairman.
2. Shri A. Zaman, I.C.S., Deputy Secretary.
3. Shri K. C. Chetty, Under Secretary.
4. Shri M. D. Sethna, Chief Director of Movements.
5. Dr. B. N. Uppal, Agricultural Commissioner, I.C.A.R.
6. Shri J. A. Daji, Assistant Agricultural Commissioner.

Ministry of Finance.

- 1.. Shri K. S. Krishnaswami, Joint Secretary.
2. Shri B. G. Idnani, Under Secretary.
3. Shri Mangli Prasad, Under Secretary.

Ministry of Production.

1. Shri D. S. Benegal, Under Secretary.

Ministry of Commerce and Industry.

1. Shri P. S. Sundaram, Under Secretary.

Ministry of Railways.

1. Shri P. Sarma, Joint Director of Railways (Railway Board).

Planning Commission.

1. Mr. E. P. Moon, I.C.S. (retd.).
2. Shri M. P. Bhargava.

STATE GOVERNMENTS

Part 'A' States.

1. *Andhra.*

Shri C. R. Krishnaswamy Rao Sahib, Deputy Secretary.

2. *Bombay.*

1. Shri V. Isvaran, I.C.S., Secretary, Agriculture and Forests Department.

2. Shri Bedekar, Under Secretary, Agriculture and Forests Deptt.

3. *Bihar.*

1. Shri R. Prasad.

2. Shri B. N. Rohatgi.

4. *Madras.*

Shri P. Sivasankaran Pillai, Secretary, Board of Revenue.

5. *Madhya Pradesh.*

1. Shri R. P. Mishra, Under Secretary, Agriculture Department.

2. Shri B. G. Ghate, Registrar, Cooperative Societies, M.P.

6. *Panjab.*

Shri M. S. Randhawa, Development Commissioner.

7. *Orissa.*

Shri B. S. Mahanti, Development Secretary.

8. *Uttar Pradesh.*

1. Shri S. K. Chaudhri, Deputy Secretary, Agriculture Deptt.

2. Shri B. N. Lal, Deputy Director, Fertilizers and Manures.

9. *West Bengal.*

Shri Nandi, Director of Agriculture.

*Part 'B' States.*10. *Mysore.*

Shri K. Mohamed Ahmed, Secretary, Home Forests and Agriculture.

11. *Madhya Bharat.*

Shri L. O. Joshi, Secretary, Development Department.

12. *P.E.P.S.U.*

Shri Arjan Singh, Director of Agriculture.

13. *Rajasthan.*

Shri Samarth Raj, Director of Agriculture.

14. *Saurashtra.*

Shri R. N. Trivedi, Secretary to Govt., Department of Agriculture and Cooperation.

15. *Travancore and Cochin.*

Shri George Thomas, I.A.S., Secretary to Government, Food and Agriculture Department.

*Part 'C' States.*16. *Bhopal.*

Shri P. S. Lamba, Director of Agriculture.

17. *Delhi.*

Shri J. C. Ramchandani, Secretary, Development Department.

18. *Himachal Pradesh.*

Shri Pushkarnath, Director of Agriculture.

19. *Kutch.*

Shri R. N. Mehra, Officiating Agriculture Officer.

20. *Vindhya Pradesh.*

Shri Sultan Singh.

United States Technical Cooperation Mission.

1. Mr. F. W. Parker.

2. Mr. Ward H. Sachs.

Opening the conference, the Minister of Agriculture said that it was evident that consumption of fertilisers had gone up appreciably during the year and one of the reasons was the increased adoption of the Japanese method of cultivation. There was an intimate relationship between the use of chemical fertilisers and higher yield of crops. In certain circles, there had been criticism of the use of chemical fertilisers but so long as heavy doses were not applied, there was very little danger. In view of the good response which cultivators had shown to chemical fertilisers this year, the Minister hoped that the State would be less cautious in estimating their demand of fertilisers for the next year. There was also the need for popularising the use of superphosphates. There should be a drive for collection of raw bones and for crushing

them in the digester which had lately been evolved so that more bonemeal could be readily made available to the cultivator.

Item I Review of the requirement of ammonium sulphate.

2. The Chairman remarked that the requirement of fertilisers during 1955 furnished by the States did not appear to be fully realistic. He, therefore, suggested that the representative of each State should give up-to-date figures of stock in hand, the estimated consumption during the current year and the estimate of likely consumption during 1955. The States should take into account the necessity of having a small carry-over stock at the end of 1955. The representatives of the States thereupon stated the position in respect of each State. A summary of the revised estimates for 1955 as it emerged from the discussions will be found in appendix I.

3. In general, it was the view of the representatives of the States that a larger consumption of ammonium sulphate in 1955 could be expected. There were complaints that supplies were often not received in time, mainly, due to the difficulty of obtaining railway wagons. The Chairman observed that if the estimates of consumption during 1955 were based on too conservative figures, it would be difficult to plan a proper programme of imports. Shri Randhawa (Panjab) was in favour of earmarking larger supplies of ammonium sulphate for field demonstration. Shri Lal (U. P.) observed that the increase in the consumption of urea might result in a fall in the consumption of ammonium sulphate. The Chairman pointed out that it was unwise not to make a provision for carry-over stocks. In the case of West Bengal this should, he thought, be not less than 40,000 tons in view of the figures of offtake in the current year. If there was no carry-over stock, the State might not be able to manage the distribution as efficiently as it ought to. If there was a reduction in the price, he thought that a part of the loss should be borne by the State Governments also. However, he agreed that the case of each State's share of the loss in such an event should be considered having regard to its circumstances.

4. In regard to the movement of fertilisers, Shri P. H. Sharma (Ministry of Railways) observed that in order to avoid bottlenecks and break-downs, the movement should be arranged uniformly throughout the year and should be rationalised in order that cross movements were

avoided. The present arrangements whereby the representatives of the Sindri Fertilizers and Chemicals Ltd. regularly discussed the requirement of movement with the Eastern Railway had worked satisfactorily. It should similarly be possible to coordinate the movement from the iron and steel works and from ports provided that the requirements were notified to the Ministry of Railways at least a month ahead. The movement over certain routes such as *via* Sakrigali, Bhagalpur, Mokameghat serving stations in North Bengal, North Bihar, Assam and U.P., or *via* Sabarmati and Viramgam serving Saurashtra or *via* Bangalore City serving Mysore, was difficult. For Mysore he suggested that this traffic should be routed *via* Bangalore Cantt. in the first instance and those quantities required for onward despatch to metergauge stations should be offered at Yashwantpur. This would ensure regular movement and avoid the transshipment at Bangalore City station. Shri Ahmad (Mysore) stated that this was feasible but it would add slightly to the freight charges.

5. Some of the representatives of the States suggested that the allowance for free time for unloading of wagons should be raised when the traffic was moved in block trains. Shri Sharma, however, stated that normally it should not take more than a couple of hours for the release of a wagon. If adequate labour was provided, it should be possible to release all the wagons within the free time. The Chairman observed that the movement to Assam should be made by rail-cum-steamer route. Saurashtra should be supplied, as far as possible, by routing imports to Bhavnagar. In general, the Chairman thought that the States should always make an effort to move fertilisers in the off monsoon seasons. Despatching instructions should be given sufficiently ahead so that they might be made available to the Railway Board in time to enable them to plan movement.

6. Some of the State representatives complained that intimation was not being received from the factory at Sindri in time before the arrival of the consignment at different destinations in their States. This made it difficult to arrange unloading in time specially in places where labour was scarce. They urged that the management of the factory at Sindri should be asked to give timely intimation of despatches in each case. Shri Pillai (Madras) wanted to include out agency stations within the f.o.r. delivery price. In his view, where the motor transport

was provided by the railways, there was no reason why the consignment should be booked only to the railway station and not to the out-agency stations. The Chairman agreed that this proposal deserved consideration.

Item II. *Popularisation of fertilisers other than ammonium sulphate.*

Item III. *Fertiliser Demonstration Programme.*

These two items were considered together.

7. It was generally recognised that nitrogenous fertilisers other than ammonium sulphate should be popularised specially in view of the programme of the factory at Sindri to produce urea and ammonium sulphate nitrate in course of the next 3 or 4 years. Most States were, however, reluctant to place large indents of these fertilisers as they were not sure of the reaction of cultivators to types which had not yet become popular.

8. Dr. Uppal explained that in 1954 the programme was to distribute 22,000 tons of fertilisers including urea and ammonium sulphate nitrate. But the programme of distribution could not be fully implemented. During the current *rabi* season also, supplies of these fertilisers had reached the cultivators very late. All these had been due to the fact that the decision to have this demonstration programme was taken rather late. It was hoped that this would be avoided in future and that fertilisers meant for the demonstration in the next *kharif* season would be made available to the State Governments by April 1955. There was a programme to distribute 25,000 tons of fertilisers in 1955. Dr. Nandi (W.B.) wanted that fertilisers meant for demonstration programme should, where necessary be transported by air to avoid delays and to enable supplies to reach remote areas in time. The Chairman observed that this might be left to the State Governments if they were prepared to meet the extra expenditure.

9. Shri Sundaram (Ministry of Commerce and Industry) pointed out that private importers of fertilisers were in a position to make adequate storage arrangements for distribution purposes. He thought that fertilisers meant for demonstration might be allowed to so come in through trade channels so that Government did not have to incur any expenditure for storage. The Chairman did not think that this would be the cheaper arrangement because it would mean that Government should import through

private firms and consequently pay higher price. This, in his view, was not necessary. The Ministry of Commerce and Industry should realise that Government were trying to popularise certain types of fertilisers and there was no reason why the benefit of this effort should go to private enterprise. Dr. Nandi (W.B.) suggested that urea should also be included in mixtures in addition to being used in straight form. Dr. Uppal pointed out that as urea was hygroscopic, it was not desirable to use it in mixtures. The allocation of fertilisers for the demonstration programme in 1955-56 was somewhat revised as a result of the discussion and will be found in appendix II.

Item III. *Problems of distribution.*

10. The Chairman referred to a note given by the Bombay Govt. about the retail distribution in that State in 1954. The State Govt. had invited tenders for distribution of fertilisers within the margin of Rs. 30 per ton and in most cases had been able to obtain quotations which fell below the fixed ceiling. In some cases, however, where the lowest quotation was higher than the ceiling, the State Govt. allowed a higher commission, and pooled the extra cost with the lower commission paid in the bulk of the distributing points. It was thereby possible to observe the ceiling of Rs. 30 per ton throughout the State. The Chairman thought that the scheme was a very useful one but there were certain points which arose out of it. He wanted to know what were the credit arrangements in different States.

11. Shri Isvaran (Bombay) stated that unlike in other States, the Government of Bombay had been the first to try the experiment of giving credit to farmers who did not necessarily own land. Credit was given in those cases on the basis of the crop yields. Such credit was given through co-operative societies. Shri Thomas (Travancore-Cochin) stated that in his State fertilisers were given to cultivators in the form of *taccavi* loans. The Chairman observed that it would be undesirable to deter the cultivators from purchasing fertilisers for want of immediate cash. Sufficient credit facilities ought to be provided.

12. The question of recovering advances made in connection with purchase of fertilisers as practised in different States was also discussed. Different systems were practised in different States. The disbursing and collecting systems were also different. It was generally

agreed that the system followed in the Madras State was most satisfactory. Under this system disbursement of loans and recovery were alike entrusted to the Agricultural Department but where recovery could not be easily effected, the Agricultural Department referred the case to the Revenue Department for necessary action.

13. Shri Prasad (Bihar) raised the question whether the interest charge should form a part of the retail price of ammonium sulphate. He pointed out that the cost of distribution of ammonium sulphate exclusive of the interest charge came to Rs. 28/12/- per ton in the Bihar State. But the State Government recovered the loan with interest for which the cultivator had to pay in addition Rs. 12 per ton. There was a general discussion on whether the recovery of loan given to the cultivator for purchasing fertilisers should form a part of the price. Several States pointed out that it would be quite undesirable to do so because not all cultivators took advantage of loan facilities and there was no reason to penalise those who paid cash in order to help those who were borrowing for buying fertilisers. At the same time some burden of interest charges would fall on the States if the recovery was not included in the price, for then the State Government would have to bear the interest charge between the time the debit was raised against them for supplies of fertilisers made from the Pool and the ultimate distribution and recovery of the price. During this time a certain amount of capital would be blocked in the value of the fertilisers for which the State Government would not be able to take any credit by recovering from cultivators. This last appeared to be a valid point and the Chairman agreed that it would be further examined and the States informed of the decision in due course.

14. Shri Ghate (Madhya Pradesh) pointed out that in his State distribution charges came to Rs. 35 per ton because of difficult communications and the fact that irrigated areas were generally away from the railway routes. The Chairman said that he was aware of the problem of transportation in certain States like Vindhya Pradesh, Himachal Pradesh etc. and that he was prepared to examine the question of these States on the basis of the actual cost of distribution. It was not desirable to increase the margin as such. He pointed out the example of the Bombay States where the maximum distribution charge of Rs. 30 was not uniformly allowed but the entire distribution cost was pooled. He thought that other States should try a similar arrangement.

Item IV. *Selling price.*

15. The Chairman wanted to know whether the present selling price of Rs. 345 per ton should be further reduced to induce the cultivators to increase their off-take of ammonium sulphate. Assuming that the price could not be reduced, was it necessary to subsidise the sale? At present it was proposed to obtain nearly half the next year's requirement by imports from abroad. This year, the imports were of the order of 80,000 tons and the average landed cost was nearly Rs. 300 per ton. Therefore, the issue price at railhead destinations did in some cases exceed Rs. 315 per ton though the Central Government had maintained this price. Production within the country had not so far out-stripped the demand. It was also necessary to have certain reserves in hand. He wanted to know whether in view of the prevailing prices of the principal food grains it was necessary to reduce the price of ammonium sulphate to induce the cultivators to increase their off-take.

16. The general opinion of the meeting was that the price of ammonium sulphate was not disproportionate to the prevailing price of the major cereals. Shri Pillai (Madras) was of the opinion that if the price could be subsidized, the consumption would considerably increase. Shri Chaudhri (U. P.) was opposed to granting any subsidy at this stage. The Chairman observed that there was little likelihood, taking into account the price of imported fertilisers, of any reduction in the price in 1955. If, however, a reduction could be secured, the benefit would certainly be passed on to the cultivator.

17. The necessity of having adequate stocks in the different distributing centres was stressed by the Chairman. Some of the States wanted to know if there was any possibility of regional stores being opened by the Central Government themselves. The Chairman pointed out that if such stores were opened, the additional expenditure would have to be passed on to the consumers and the price of fertilisers would rise. He thought it better to have the stocks distributed over the selling points and pointed out that the element of storage had already been taken into account in the price.

Item V. *Use of phosphatic fertilisers.*

18. Shri Randhava (Punjab) pointed out that the use of ammonium sulphate alone was not beneficial as it frequently led to lodging of crops with consequent loss to

the farmer. The use of superphosphate in such cases was beneficial as it strengthened the straw. He, therefore, advocated larger consumption of superphosphate. The Chairman observed that the consumption of superphosphate was greater when the Phosphatic Pool was in existence. Although the price had decreased since then, the consumption had not increased. The producers would expand their production if Government took the responsibility of pushing sales. This could not be done merely by propaganda but by distributing through the pool. The question was whether the Pool should be re-established or whether the distribution of phosphatic fertilisers should be left to the trade. There was no difference of opinion about the need to increase the consumption but the revival of the Pool could not be thought of unless the States cooperated. There was no question of limiting the Pool to a certain quantity. Either the entire output could have to be taken or nothing at all.

19. Dr. Nandi (W.B.) was opposed to the revival of the Phosphatic Pool. He pointed out that it was possible for the West Bengal Government to obtain superphosphate at Rs. 180/ per ton as against the Pool price of about Rs. 220/ per ton as it existed in 1952. He also thought that the revival of the Pool would mean that his State and other States where producing units were situated would have to pay much more in the form of the equated railway freight. Shri Isvaran (Bombay) was also of the same view and opposed the revival of the Pool. Shri Lal (U.P.) and Shri Randhava (Punjab) were, however in favour of the revival of the Pool. Shri Prasad (Bihar) favoured the revival of the Pool and gave an instance in which the State Government had contracted for the supply of superphosphate from a manufacturer at Rs. 200/ per ton and afterwards discovered that the same manufacturer was supplying superphosphate to private indentors at a much lower price, so that the State Government found it difficult to sell the superphosphate they had thus obtained at a higher price. To eliminate competition of this nature, he thought that the revival of the Pool would be beneficial.

20. There was a suggestion that the States which were not agreeable to the revival of the Pool might be left out. The Chairman thought that this would lead to complications. The general view of the meeting was that the Pool should be revived. The Chairman said that the matter would be further examined in consultation with the manufacturers specially in regard to the issue price.

21. The Chairman thought that the State Governments should arrange with manufacturers of superphosphate for production of fertiliser mixtures which could be distributed to cultivators.

22. The question of the procurement and distribution of bonemeal was also discussed. Dr. Uppal pointed out that the question of availability of bonemeal was linked up with the question of export of crushed bones and bone-grist and that the price of bonemeal would go up if the export was stopped. If bonemeal was to be made available to cultivators at an economic price, its price should not exceed Rs. 150/ per ton.

Item VI. *Use of potassic fertilisers.*

23. The general view of the meeting was that the present policy of import was justified and the quota fixed was adequate. Some of the States thought that the quota could be raised and promised to supply the necessary information in due course.

ANNEXURE I.

Revised estimates of demand of fertilisers for 1955.

S. No.	Name of State	Firm Demand for Nitrogenous Fertilisers for 1955			
		Sulphate of Ammonia	Urea	Ammo- nium Sulphate Nitrate.	Nitrochalk
1	2	3	4	5	6
1. Madras		1,00,000	1,300	1,200	100
2. Assam		10,000	..	..	..
3. West Bengal		14,000	1,000	..	..
4. Bihar		32,000	..	..	..
5. Bombay		50,000	1,000	3,000	..
6. Orissa		10,000	2,000	..	..
7. Madhya Pradesh		5,000	..	..	..
8. Punjab		26,000	..	..	..
9. Andhra		70,000	2,000	..	..
10. U. P. . . .		64,000	..	..	..
11. Hyderabad		20,000	..	..	..
12. Mysore		30,000	1,500	500	..
13. Travancore-Cochin		10,000	200	100	50
14. Rajasthan
15. Saurashtra		1,500	..	..	..
16. Ajmer		200	..	..	..
17. Bhopal
18. PEPSU		5,500	..	..	..
19. Madhya Bharat		1,500	..	..	..
20. Himchal Pradesh		450	..	..	..
21. Coorg		1,000	300	300	150
22. Kutch		125	5	5	5
23. Delhi		2,500	..	..	..
24. Vindhya Pradesh
25. Manipur		8	..	..	3
26. Tripura		50	..	..	..
TOTAL .		4,62,133	9,305	5,105	308

ANNEXURE II

Name of the State	Demand of fertilisers. for demon- stration 1955-56
1. Ajmer	19·0
2. Andhra	1054·5
3. Assam	532·0
4. Bhopal	100·0
5. Bihar	2500·0
6. Bombay	1900·0
7. Coorg	19·0
8. Delhi	40·0
9. Himchal Pradesh	100·0
10. Hyderabad	1425·0
11. Jammu & Kashmir	760·0
12. Kutch	19·0
13. Madhya Bharat	1000·0
14. Madhya Pradesh	2000·0
15. Madras	1054·5
16. Manipur	19·0
17. Mysore	800·0
18. Orissa	1186·0
19. PEPSU	400·0
20. Panjab	1400·0
21. Rajasthan	433·0
22. Saurashtra	358·0
23. Travancore-Cochin	250·0
24. Tripura	47·5
25. Uttar Pradesh	2660·0
26. Vindhya Pradesh	190·0
27. West Bengal	2750·0
TOTAL	
23,016·5	

APPENDIX VI

Three months have passed since the opening of the USSR Agricultural Exhibition of 1954 in Moscow.

What are the preliminary results of its work?

Let us remind the reader that as regards scope, diversity, and number of exhibits the Agricultural Exhibition has no equal in the world. Three thousand seven hundred and five stands distributed in 349 halls of 76 pavilions reflect the achievements in agriculture and the successes of economy and culture in the USSR.

Within the short period of its work the Exhibition gained popularity among the people.

Facts and figures supply sufficient proof of the close ties existing between the Exhibition and the broad masses of agricultural workers, industrial workers, and progressive Soviet science. Over 150,000 foremost farmers and farm organizers, 3,911 collective farms, 1,306 state farms, 419 machine and tractor and specialised stations, over 3,000 livestock sections, 196 districts, and 534 research and experiment institutions participated in the Exhibition. But these impressive figures are far from complete, because of late a great many combine operators and their helpers, engine drivers, tractor drivers and other farm mechanizers who distinguished themselves at harvesting time this year were admitted as participants of the Exhibition.

All the participants, both organizations and individuals, demonstrated their wonderful practical experience so as to make it available to the entire country. In their turn they themselves gained new knowledge from each other at the Exhibition the treasure house of popular experience.

The exhibition is a wonderful school for excursionists. Two hundred and seventy five thousand of them attended it during these three months. Representatives of collective farms, state farms, machine and tractor stations and Party and Soviet organisations from every district of the Soviet Union came to the Exhibition in order to learn about the new progressive achievements and to apply them in their own work. It was always lively from morning till evening

at the stands of the Main Pavilion and the Republican zonal and branch pavilions. Excursionists kept special diaries in which they made notes about their observations and described in detail the new methods applied in field husbandry, livestock breeding, and other branches of farming.

The lectures given at the Exhibition were particularly popular. Thousands of people attended a total of 3,600 lectures in the exhibit halls and in the hostels. They were given by prominent scientists and famous practical workers.

The participants and visitors of the Exhibition are extremely interested in the new system of soil cultivation elaborated and applied by the famous collective farm scientist T. Maltsev of the "Zavety Lenine" Collective Farm, Shadrinsk District, Kurgan Region. Special stands illustrate Maltsev's method. More than three hundred lectures and talks were given by agronomists from the Kurgan Region who came to work as consultants at the Exhibition for a period of two months. Maltsev himself three times made reports to a large audience.

Besides the lectures, 30,000 talks and consultations were given at the Exhibitions and 120 general exhibition mass meetings and 2,227 meetings in the pavilions were held.

Peoples of different nationalities Russians, Ukrainians, Byelorussians, Georgians, Kazakhs, Latvians, and representatives of diverse districts of the country could be seen in the same meeting hall. They were drawn together by their common aims and interests. Livestock breeders of the Moscow district, for instance asked their Kostroma comrades about their methods of feeding dairy cattle. The Kostroma breeders willingly answered the questions in detail and in their turn asked questions of the Moscow cattlemen. Ukrainian potato growers were interested in the work of their colleagues from the Borodino Collective Farm in Mozhaisk District Moscow Region. A, Yermakova, Hero of Socialist Labour, who gathered a crop of 44 tons of tubers per hectare, communicated her methods to the farmers of the Shevchenko Collective Farm in Pereyaslav Khmel'nitsky District, Kiev Region, where the Hero of Socialist Labour Y. Khobta got his record Potato yields.

During these three months more than 7 and a half million persons visited the Exhibition. Every one of them carried away unforgettable impressions.

Millions of farmers who could not yet come to Moscow are studying the materials of the Exhibition. This is facilitated by the production of short reel films about the advanced experience and achievements of agricultural science, a large number of "Agricultural News" reels and slides. Talks popularizing the experience of the participants of the Agricultural Exhibition are regularly broadcast over the radio. One hundred and fifty reports of the best farmers and scientists have been recorded for broadcasting.

Hundreds of foreign delegations visited the exhibition. They also studied in detail the achievements of agriculture in the Soviet Union.

Work will not cease at the exhibition in winter. Intense studies will proceed all winter in its main pavilions and lecture and demonstration halls. The Exhibition will become a huge base for diverse courses of studies several thousand leading workers of agricultural departments, farm specialists, directors of State farms and machine and tractor stations, and chairmen of large collective farms will attend a series of lectures on problems of the organization and all round mechanisation of farm production. They will study the advanced practical experience gained in field husbandry and livestock breeding and acquaint themselves with the latest machinery applied on the farms.

The staff of the Exhibition will have to do much work during the winter period to investigate the economic effectiveness of new methods in agriculture, of new types of machines, etc. The results of these investigations will be widely demonstrated at the Exhibition of 1955.

A large group of workers of the Exhibition is going out to the different republics, territories and regions to visit their collective farms, state farms and machine and tractor stations with the aim of studying the advanced experience and making preliminary choice of new exhibitors.

There can be no doubt that the Agricultural Exhibition of 1954 will serve to promote the further development of agriculture of the USSR to achieve success in the national wide struggle for the creation of abundance of foodstuffs and raw material for industry.

APPENDIX VII

Minister for Agriculture's Circular letter APPENDIX
No. XV

Tour report for the period from 8th to 31st October, 1954.

The places visited during the period from 8th to 31st October, 1954 were 17 the names of which are as given below:—

1. Saharanpur
2. Sarsawa
3. Dehra Dun
4. Doiwala
5. Lhaksar
6. Deoband
7. Rohana
8. Shamli
9. Muzaffarnagar
10. Mansurpur
11. Khatauli
12. Sakoti Tanda
13. Daurala
14. Mawana
15. Meerut
16. Mahiuddinpur
17. Begamabad

The main object of this tour was to inspect the sugarcane crop with a view to note its condition and estimate the yield of sugarcane top dressed with Ammonium sulphate. In addition to this I have found out (1) Total area under cane (2) Quantity of cane crushed (3) Quantity of sugar produced (4) Recovery of sugar obtained and (5) the Number of the days factory worked.

The condition of the standing crop of sugarcane was on the whole very satisfactory and the estimated yield shows that there was general increase in yield to the extent of about 25 per cent. The factory-wise estimates in comparison to the last year are given in the following statement:—

Sl. No.	Name of Factory.	Area under cane in thousand acre		Total yield of cane in Lac mds.		Total increase.	Percent- age of increase in yield.
		1953-54	1954-55	1953-54	1954-55		
1.	Sharanpur . .	37·38	43·22	33·33	48·16	14·83	44%
2.	Doiwala . .	22·25	22·36	10·92	13·16	2·24	20%
3.	Lhaksar . .	31·90	33·50	37·12	46·77	9·65	26%
4.	Deoband . .	15·08	19·22	37·78	57·43	19·65	52%
5.	Shamli . .	22·23	30·86	53·68	93·13	39·45	73%
6.	Rohana . .	12·63	16·17	42·01	68·00	25·50	60%
7.	Mansurpur . .	12·96	14·70	42·40	60·00	17·60	41%
8.	Khatuli . .	22·84	26·11	37·90	54·15	16·25	43%
9.	Sakoti Tanda . .	11·69	13·85	23·78	35·21	11·43	48%
10.	Daurala . .	21·26	23·12	40·99	55·71	14·72	35%
11.	Mawana . .	27·94	34·22	35·69	54·63	18·94	53%
12.	Meerut . .	21·52	28·96	32·71	55·00	22·29	68%
13.	Mahiuddinpur . .	11·61	13·67	27·20	40·61	13·41	49%
14.	Bagamabad . .	18·74	25·89	30·46	42·08	11·62	38%
		290·75	346·05	486·46	724·04	237·58	48% ¹

The total area to be top dressed with Ammonium Sulphate as fixed by the cane Department was 30,617 acres while the area actually top dressed comes to 29,171, acres. It means the growers could not reach the target and there was a fall of about 5 per cent. It was due to the fact that the fertiliser could not be supplied to the cultivators.

The quantity of Ammonium Sulphate used as top dressing in the various zones is shown in the table given below:—

Name of Zone	Target fixed by the cane department.	Area top dressed.	Quantity of A Sulphate used @ 1 md. per acre.	@ 2 mds. per acre.	Total quantity Ammonium sulphate used.
1. Sharanpur	2000	1225.59	1194-33-0	67-21-0	1262-14-0
2. Sarsawa	750	876.39	1280-29-0	86-0-0	1166-39-0
3. Doiwala	1000	966.82	736-34-0	24-7-0	751-1-0
4. Lhaksar	2000	2005.74	1871-7-0	79-8-0	1950-15-0
5. Deoband	2000	2166.38	2112-0-0	108-0-0	2220-0-0
6. Rohana	2000	2097.42	1469-28-0	1313-30-0	2683-18-0
7. Shamli	3000	3961.0	2841-0-0	2340-0-0	5181-0-0
8. Mansurpur	630	1509.7	1479-20-0	60-0-0	1539-20-0
9. Khatuli	1779	1535.4	1495-30-0	79-20-0	1575-10-0
10. Muzafarnagar	969	1014-23	954-0-0	100-0-0	1064-0-0
11. Sakati Tanda	2018.66	1814.99	1724-12-0	180-35-0	1905-7-0
12. Daurala	220.9	2395.23	2358-20-0	79-28-0	2438-8-0
13. Mowana	3280.5	2624.45	2544-20-0	160-0-0	2704-20-0
14. Meerut	1936.68	1896.63	2484-7-8	110-0-0	2594-7-8
15. Mohuddunpur	1612.83	1612.83	1531-28-0	162-5-0	1693-33-0
16. Begamabad	2245.42	829.0	847-36-0	48-0-0	895-36-0
	30617.99	29171.80	26936-34-8	4918-34-0	31855-28-8

All the factories under report have crushed different quantities of sugarcane during the last three years. It may be due to that certain years were very bad while other were satisfactory e.g. 1952-53 was a bad year and 1951-52 was a good year as mentioned in the statement given below:—

Sl. No.	Name of Factory.	Quantity of Cane Crushed in lac maunds.		
		1951-52	1952-53	1953-54
1. Sharnapur	.	66.90	38.03	33.33
2. Doiwala	.	22.10	14.65	10.92
3. Lhaksar	.	57.27	39.97	37.09
4. Deoband	.	53.18	33.87	37.78
5. Rohana	.	55.63	32.11	42.5
6. Shamli	.	65.52	42.27	53.68
7. Mansurpur	.	55.17	32.15	42.40
8. Khatauli	.	49.55	28.32	37.91
9. Sakati Tanda	.	34.82	16.39	23.78
10. Daurala	.	60.92	30.65	40.99
11. Mawana	.	45.65	23.63	35.69
12. Meerut	.	46.50	29.7	32.71
13. Mohiddunpur	.	41.09	9.23	27.20
14. Begamabad	.	42.52	20.86	39.46
		696.82	379.70	486.44

The season also affected the quantity of sugar produced by the various factories i.e. the year 1952-53 was bad year and therefore the sugar production declined from 6090137 mds. in 1951-52 to 36,61,036 mds. in 1952-53 The exact figures of sugar produced by all the factories are given in the following statement.

Sl. No.	Name of Factory.	Sugar Production in Lac Mds.		
		1951-52	1952-53	1953-54
1.	Sharnapur	582681	362113	315034
2.	Doiwala	186686.5	124781.5	99.077
3.	Lhaksar	537253.56	398444.31	379480.12
4.	Deoband	53518.75	345650.43	392918.38
5.	Rohana	48788.00	308265.00	421260.00
6.	Shamli	576152.00	405865.5	522290.0
7.	Mansurpur	480562.00	310920.0	424058.0
8.	Khatuli	426000.00	249000.0	387000.0
9.	Sakati Tanda	292214.75	153841.15	227652.65
10.	Daurala	489387.5	298542.0	39646.24
11.	Mawana	392239.75	229374.22	333825.48
12.	Meerut	413597.5	196267.0	32999.0
13.	Mohiuddinpur	364975.0	88663.0	266027.0
14.	Begammabad	357582.07	191309.75	301390.22
		6090137.13	366136.86	4794394.09

All the factories are showing gradual improvement in the recovery of sugar. The highest recovery was obtained by the Deoband factory and the lowest by Doiwala as shown in the following statement.

Statement showing the recovery percentage of sugar production.

Sl. No.	Name of Factory	Sugar Recovery percentage		
		1951-52	1952-53	1953-54
1.	Sharnapur	8.71	9.52	9.45
2.	Doiwala	8.43	8.52	9.08
3.	Lhaksar	9.39	9.97	10.23
4.	Deoband	9.47	10.20	10.40
5.	Rohana	8.76	9.60	9.91
6.	Shamli	8.79	9.60	9.68
7.	Mansurpur	8.71	9.66	9.9
8.	Khatauli	8.55	9.84	10.20
9.	Sakati Tanda	8.33	9.385	9.567
10.	Daurala	8.03	9.74	9.67
11.	Mawana	8.59	9.71	9.35
12.	Meerut	9.10	9.54	10.09
13.	Mohiuddinpur	8.89	9.60	9.77
14.	Begammabad	8.41	9.17	9.893

As enquired on the spot, I have found out the number of the working days of each factory during the last three years. The details are given in the following statement.

Sl. No.	Name of Factory	Working days.		
		1951-52	1952-53	1953-54
1.	Saharanpur . . . . .	..	..	..
2.	Doiwala . . . . .	..	..	..
3.	Lahksar	227	134	116
4.	Deoband . . . . .	..	..	..
5.	Rohana	215	119	151
6.	Shamli	220	136	171
7.	Mansurpur	208	124	148
8.	Khatuli	198	107	136
9.	Sakati Tanda	206	106	143
10.	Daurala	223	103	162
11.	Mawana	220	111	158
12.	Meerut	195	92	136
13.	Mahiuddinpur	209	57	139
14.	Begammabad	184	101	151

I may add that I had made round of more than 100 villages in all the zones and have discussion with the cane growers. The various problems about the cultivation of sugarcane, they had expressed that the top dressing with Ammonium Sulphate was one of the most important items of sugarcane cultivation. They felt quite satisfied that the Government had taken the right step to improve sugarcane by way of providing facilities to have ample Ammonium Sulphate this year, they have realised that the cane crop must be top dressed @ one md. 10 seers per acre at the sowing time and at one md. 10 seers per acre before the rain starts. *They have also suggested that sufficient quantity of Ammonium Sulphate should be supplied to the cultivators in the month of January if a good crop is required.*

APPENDIX VIII

A NOTE ON CAMPAIGN FOR THE INTENSIVE CULTIVATION OF RICE IN INDIA.

Introduction.

In India paddy crop is grown over an area of 7·3 million acres, i.e. about 30 per cent. of the total cultivatable area, with an annual production of about 22 million tons of rice. The crop is grown in almost all States in India under varied climatic and soil conditions, but the rice areas are mostly concentrated in the States of Bombay, Madras, Travancore-Cochin, Mysore, Madhya Pradesh, Bihar, Orissâ, West Bengal and Uttar Pradesh which contribute more than 90 per cent. of the country's rice production.

Almost every one in the country is painfully aware of the fact that the average yields of our principal food crops are alarmingly low as compared to the yield obtained in other countries. In the case of rice the situation will be clear from the per acre yields of some of the important rice growing countries given below:—

Country	Per acre yield in lbs.
India	700
China	1550
Indonesia	1030
Indochina	715
Thailand	890
Japan	2350
Philippines	700
Korea	1950
U.S.A.	1390
Africa	1809
Europe	2830

The yield harvested in some of the South East Asian countries like China, Japan, Korea, etc. are about two to three times higher than the per acre yield in India. A critical survey of the rice cultivation practices in these countries show that the secret of higher yields lies in the greater use of organic manures coupled with intensive use of fertilizers. In China and Japan very great importance is attached to the preparation of compost and the utilization of human excreta as manure, it is reported that in China as much as 67 per cent. of the nitrogen applied to the crops is in the form of compost.

In India the farmer depends exclusively on F. Y. M. which is not available in abundance and most of which is consumed by way of fuel. Thus every year smaller quantities of plant nutrition are added to the Soil by way of F.Y.M. and greater quantities of fertilizers elements are removed from the soil by the crop. To put the whole position in a nut shell, the factors which are responsible for holding up crop yields in India are insufficient use of manures and fertilizers, inadequate irrigation and improper care of crop at all stages of growth. Due to constant low use of manures and fertilizers the soils have been completely impoverished of plant nutrition and the fertility status is so low that further deterioration is rather impossible.

The problem of low yields needs to be tackled on an emergency basis. Experimental evidence available from different parts of the country shows that liberal use of fertilizers coupled with adequate irrigation can definitely bring about a large increase in per acre yield of paddy. Indian soils are well known for their deficiency in nitrogen, phosphorus and organic matter and therefore respond quickly to the application of these. Increase in yield may be anything from 20 to 200 per cent. depending on soil, variety of paddy, fertilizers used, etc. All the accumulated wealth of research and experimental work points to a single fact that there are vast potentialities for forcing up yields of paddy and any drive for increased production based on reliable knowledge of fertilizer responses must result in increased yields.

A New Method comes to light.

The low yields of paddy have been seriously engaging attention of the Government of India for the past few years and although some attempts at popularization of greater use of fertilizers, etc. by granting subsidy to

farmers were made, they did not prove a complete success. There was the urgency for producing additional food for feeding the people as also to save foreign exchange for more essential imports and most of all to raise the standard of living of the farmers. The Government of India was looking for a solution to the chronic problem of insufficiency of food, particularly rice.

It was a happy accident that the President of India, Dr. Rajendra Prasad, came to know of a novel method, known as the Japanese Methods of paddy cultivation that was being practised by the Kora Gramodyoga Kendra, a constructive works centre run by the Gandhi Memorial Fund at Shimpavalli, about 25 miles away from Bombay.

It was on the 19th September, 1952 that the President wrote to the Union Minister of Agriculture in the matter and sent a report on the new method received by him from the Kora Kendra and stated that:

"It appears that the experiment which has been made in connection with paddy deserves encouragement. I trust that it will receive your attention and the Department will look into this and see if the results can be utilised in other parts of the country also."

The Minister for Agriculture through his technical adviser was quick to move in the matter and immediate contacts were established with the Bombay State Department of Agriculture and the Kora Gramodyoga Kendra to obtain data regarding the experiments carried out by them in the new method.

In the meantime, the Prime Ministers' attention was also drawn to the new method and he wrote to the Minister of Agriculture on 22nd December, 1952 that:

"Your attention must have been drawn to the improved methods of rice cultivation which have been adopted in many parts of Bombay State. These are after the Japanese pattern. It seems to me that this is a revolutionary approach which will yield very great results. It surprises me that in spite of the success of this experiment in Bombay State, enough attention has not been given to it. I have referred to this matter in my fortnightly letter today. I would particularly draw your attention to it."

About this time a delegation of Extension Officers from different States headed by the Vice-President, Indian Council of Agricultural Research and the Agricultural Extension Commissioner was on a visit to U.S.A. and Japan. The Minister for Agriculture instructed the delegation to make a special study of the Japanese agriculture with special reference to their system of paddy cultivation. The delegation seized the opportunity to make an intensive study during their stay in Japan.

Preliminaries for the countrywide campaign.

The Japanese method practised by the Kora Kendra was receiving more and more publicity and was a matter of topical interest for research workers and farmers alike. It was actually a challenge to the agricultural scientists of the country. It meant that every step that was to be taken in recommending this method was to be taken very cautiously.

The first step in this direction was the broadcast appeal by Dr. P. S. Deshmukh, Minister for Agriculture, on the All-India Radio on the 10th January, 1953, explaining the details of the Japanese method and the encouraging results obtained by the Kora Kendra, Bombay in that connection. The Minister lay before the Agricultural Scientists, farmers, businessmen and other sections of the public his plans for adoption of the new method on a country-wide scale and asked for their cooperation in that regard.

Planning the campaign.

Immediately after the broadcast on the 10th January, 1953, the Minister for Agriculture convened a meeting of the technical advisers and other officers of the Ministry on the 20th January, 1953 for a full discussion with some workers of the Kora Kendra who were specially invited to acquaint the meeting with their experiences in the new method. A definite and agreed programme to popularise and propagate the new method emerged out of this discussion. The programme was to be as follows:—

- (i) to arrange in cooperation with the State Governments, the Gandhi Smarak Nidhi and other workers a campaign of demonstration, propaganda and publicity.
- (ii) pamphlets for workers and for farmers will be prepared in various languages of the country and in a style which would interest them.

- (iii) film strips and posters will be prepared. These would be distributed on a very extensive scale throughout the length and breadth of the country so as to arouse interest in as many areas as possible.
- (iv) fairs and melas would be utilised.
- (v) arrangements for training, by workers of the Gandhi Smarak Nidhi and the State Government experts and officials are being arranged.
- (vi) organise visits of farmers to centres of demonstration including Kora Kendra.

The Agricultural Extension Commissioner with the Government of India was asked to take charge of the campaign and the I.C.A.R. was made responsible for its promotion. Thus an elaborate plan for the promotion of the campaign on a large scale had to be prepared to follow a regular time schedule from the start to the end to ensure that nothing which was humanly controllable was responsible for the failure of the campaign at any stage. It was a new experiment and an experiment never tried on such a large scale in the history of this country and probably in none so far. The following steps were to be taken in connection with the launching of the campaign—

(1) The campaign should start simultaneously all over the country on the 15th March, 1953 when the Minister for Agriculture would request the Prime Minister and all the State Ministers to open a campaign by broadcasts from different centres of the All-India Radio.

(2) By that date all the campaign material must be available to the workers of the campaign in the States for large scale propaganda. This material would consist of—

- (a) detailed pamphlets giving fullest description of the new method for use of the agriculture workers.
- (b) small circulars in simple language outlining each step in the new method through drawings, wherever possible.
- (c) posters.
- (d) film-strips, etc.

All these will be included in one promotion packet which will be with each person engaged in the propaganda and he will be given full directions as to how to use these.

(3) States should be addressed to make the necessary arrangements well in advance for the supply of fertilizers required to the farmers, who as a result of the campaign adopt this method.

(4) The State Directors of agriculture should immediately prepare small technical leaflets based on the general principles of the Japanese method with suitable adjustments regarding quantities of seed and manure in the light of their own experience. These should be written in simple local language and should be available to the Ministry's information section immediately so that adequate numbers can be printed and made available.

(5) Wherever possible, good farmers in a locality may be chosen and they may be persuaded to plant adequate number of nurseries so that distribution of seedlings round about may be possible. If necessary, prizes may be offered to such farmers for the best nurseries.

(6) Wherever rich organic manure like sludge, tank silt, etc. are available these should be utilized by diverting them to paddy growers.

(7) Holidays be declared in the transplanting season to enable teachers and children in large numbers to assist transplanting operations so that this can be completed within the shortest time available. Similar holidays at intervals may be worth while to ensure association with farmers and completion of measures like weeding and so on. This kind of participation should be a regular feature on two or three week-ends consisting of Friday, Saturday and Sunday.

(8) An organization should be immediately set up in a State to take the full responsibility for promoting these campaigns by propaganda and of ensuring that the necessary supplies and materials are available in time in right quantities to the farmers who adopt the method and that they are constantly assisted throughout the growing season with the necessary information on technique, in the matter of supplies and in general for the success of the campaign.

The New Method

The following are the main features of the new method that was recommended for adoption on a countrywise scale:—

- (1) Raised seed bed for growing rice seedlings.
- (2) Low seedrate.

- (3) Heavy manuring of the crop in the nursery and in the field.
- (4) Transplanting crop in lines to facilitate interculture operations.
- (5) Fewer seedlings per bunch, and
- (6) Interculturing the crop at intervals.

Based on the above six principles the Indian Council of Agricultural Research prepared a pamphlet, which was to be modified by each State keeping the principles the same, in the light of local experience regarding varieties, fertilizer doses spacings, etc. The pamphlet is reproduced below:—

"The Japanese Method of Paddy Cultivation"

In the Japanese method of growing you must—

- (A) Grow stronger seedlings for transplanting.
- (B) Grow a better main crop.
- (C) If both are done right way your yields can be doubled or tripled.

"Growing seedlings by the Japanese Method"

1. Plan for fewer seedlings per acre.

Most farmers in India sow too many seed. Many good farmers plant only 20 pounds of seed for each acre to be put in paddy. Ask your local agricultural officer how much seed to sow in your land.

2. Make a raised seed bed.

You should plough paddy land right after the harvest. If ploughing is not done after harvest the land should be dug up and clods broken.

Your nursery seedbed should be four feet wide and three inches above the level of the ground and of any handy length. A space of 1 foot wide should be left in between the beds. This allows you to work and weed the seed bed without injuring the plants.

For each acre you plant in paddy, 1/20 of an acre must be sown for seedlings.

You sow 20 pounds of paddy for each acre planted to the crop. This many pounds of seed should be sown in a seedbed of 1/20 of an acre. Sow one pound of seed for about every 25 feet of bed.

Stir into the soil three baskets (about one maund) of compost or cowdung manure for each twenty five feet of bed.

For each 25 feet of bed sprinkle two double handfuls (one pound) manure mixture. This mixture is made of equal parts of super phosphate and ammonium sulphate.

Smooth the soil and then cover it with fine compost manure about 1/8 inch thick. Then cover the bed with a thin layer of ashes.

The bed is ready for the seed.

3. Selecting Good Seed.

Get the best seed. Ask your Agricultural Officer what seed you should use. Put these seeds in a bucket of salt water. The poor seed will come to the top. Skim these off and save only the heavy seeds in the bottom of the bucket for planting (3 per cent. lime solution may be used).

After the seeds have been selected place them into perenox mixed with water. Leave them in the mixture for 20 minutes (3 lbs. of perenox in 100 gallons of water).

4. Planting the seed in the nursery.

Two or three days before the rains plant the seed. Cover the seed with 1/8 inch of fine earth.

If rains do not come in time water the bed by water cans. Where there is canal and tank irrigation, this is not done and planting may be earlier.

5. Caring for the seedlings.

Seven or eight days after your seedlings come up go through the beds and carefully remove all weeds. Your seedlings will be ready to transplant when the sixth leaf has formed. The plant will be 6 to 8 inches high at this time. It is better to transplant earlier than late.

Growing the paddy crop by the Japanese Method

1. Preparing the field.

You should plough your paddy fields right after the harvest. Following the first monsoon rains the field should be ploughed again. Your yields will be higher if a green manure crop is grown for turning under before transplanting.

Be sure to fill all cracks in the bunds. Pack these well to stop rats and crabs.

Manure must be used to get larger yields. Fifteen to twenty cartloads of compost or cowdung manure is needed for each acre. This manure should be ploughed into the land before puddling. One hundred pounds of ammonium sulphate mixed with 100 pounds of super phosphate or bone meal may be used on each acre, but local officers should be asked about this.

2. Transplanting seedlings.

Pull seedlings out one at a time and be careful not to bruise the stems or break the roots. If the soil is hard, use a tool to loosen it. You should not jerk or hammer plants to remove soil.

When pulling up the seedlings, weeds must be removed.

Farmers using the Japanese method never plant more than four seedlings to the hole.

By this method the seedlings are planted straight up rather than at any angle. You hold your fingers along the side of the plants and push them into the soil ahead of the seedlings. This way your fingers make way for the tender roots. The more roots you save the stronger your plants will be.

Your plants should be in 10 inches apart. This is done by planting them in straight lines 10 inches apart in lines. There is 10 inches between each line.

To speed up planting have two workers hold a long string in a straight line and on this string put markers 10 inches apart. The seedlings are placed in the soil at the markers. Then the string is moved over 10 inches and the planting at the markers is done again. ●

3. Caring for the crop.

After the crop has grown for two weeks the farmer must go through and remove all weeds. To get the highest yield you may use 100 pounds of ammonium sulphate mixed with 100 pounds of superphosphate one month after transplanting (get local advice). You should work this manure into the soil around the roots of the plant. Working around the roots increases yields.

From time to time you should move a soil scratching tool between the plants. About two weeks before flowering, field work should stop. Any more cultivation will lower yield.

Plans for Propaganda

The following measures were adopted for ensuring success in the promotion of the campaign:

(1) On the 5th March, 1953 campaign officers from different States were assembled in Delhi and briefed into the campaign plans and material produced for promoting the campaign was personally handed over to ensure its being in the hands of their workers well in time. This consisted of:—

Leaflets	English	10,000
Leaflets	Hindi	25,000
Flip Books	English	10,000
Flip Books :	Hindi	25,000
Flannel graphs		5,000
Poster	Hindi	50,000
Poster	Blank	90,000

Apart from this the press, radio, field demonstrations talks, exhibitions, etc. were pressed into service for propagating the campaign.

(2) The campaign was to be launched simultaneously in all the States on the 15th March, 1953. The Minister of Agriculture in each State gave a broadcast on the All India Radio on the 15th March, 1953, opening the campaign.

(3) The State Governments were asked to prepare their own pamphlets in regional languages, outlining the features of the method. The Government of India arranged for the printing of these pamphlets which were distributed in large numbers to interested persons.

(4) The fertilizer requirements of each State were ascertained and arrangements were made to deliver the same to the States at places required by them. Each State was asked to open several depots to stock fertilizers and seeds in order to ensure quick and timely supply to the door steps of the cultivator.

(5) The States were asked to procure large quantities of improved seed for distribution to the needy cultivators.

Incentives provided by the Government of India

(1) In order to popularise the use of ammonium Sulphate and to give a fillip to the cultivators, the Government of India reduced the price of ammonium sulphate from Rs. 365 to Rs. 290 per ton ex-Sindri.

(2) The Government of India arranged for free supply of propaganda material in different regional languages worth about Rs. 50,000.

(3) The railway authorities were requested to co-operate in the quick movement of fertilizer from Sindri fertilizer factory to the different States in order to ensure timely supply of fertilizers.

(4) Credit facilities to the extent of Rs. 10 million were offered to States and out of this about Rs. 8 million were utilized for supply of seed fertilizers, etc. to the cultivators for different crops. Most of this amount was utilized for the supply of fertilizers to the farmers on loan.

Results of the 1953-54 campaign

(1) The campaign resulted in the spread of the new method over an area of 4 lakh acres (appendix I) on which all principles of the Japanese method were fully practised. Apart from this, it is estimated that about 30 lakh acres were brought under postal Japanese method, i.e. where intensive, fertilizer use was resorted to along with some (but not all) principles of the method. The target laid down by individual States for bringing land under the new method was exceeded in several cases.

(2) The per acre yield under the new method in different parts of the country ranged between 15 mds. (1200 lbs.) to 65 mds. (5330 lbs.) per acre as against an average per acre yield of 7.5 mds. (615 lbs.) to 44 mds. (3600 lbs.) per acre.

(3) The estimated overall additional yield per acre over the local method was of the order of 16 mds. (1310 lbs.) per acre. The method has thus conclusively established its potentialities for stepping up production to a considerable extent.

(4) In the 25 States that had taken up the new method the estimated excess production was of the order of 1,97,000 tons under the full Japanese method and about

2,15,000 tons under 1 partial Japanese method, thus totalling to 4,12,000 tons.

(5) The increased per acre returns in terms of money ranged between Rs. 29 to Rs. 350.

(6) On a conservative estimate of 200 lbs. of fertilizer mixture per acre, it will be seen that over the 34 lakh acres that were under partial or full Japanese Method roughly 2,00,000 tons of ammonium sulphate and 1,50,000 tons of superphos phate was used by the farmers.

Best Performers in the New Method

The names of the first six best performers in each State are given in appendix II. It will be seen that the record yield was 1,325 mds. (10865 lbs.) per acre. The yield varied considerably from State to State as the conditions of soil, water supply etc., are much different from region to region.

Cost of cultivation per acre

This factor is considerably influenced by the availability of labour climate conditions, etc. The cost of cultivation for the new method varied from Rs. 78 to Rs. 357 per acre as compared to Rs. 61 to Rs. 251 per acre under the local method in different States (Appendix I). In all cases however the extra expenditure on cost of cultivation due to the employment of new method has resulted in excess production which has more than balanced the excess expenditure and left considerable margin of profit to the cultivator.

Campaign in the current year 1954-55

Due to the spectacular success achieved and the enthusiasm and response shown by the farmers in the adoption of the Japanese method during 1953-54 was decided to launch a country-wide campaign in a more extensive scale and bring about 2 million acres under the method. The targets laid down for each State for the current year may be seen in appendix III. The current years' crop has suffered heavily in the States of Assam, West Bengal, and Bihar, due to floods and excessive rains. The overall crop position is however satisfactory. The reports available from individual States show that till now about 4,15,658 acres have been put under the new method (appendix IV). Additional information is awaited from several States regarding the acreage put under the new method.

For the current years campaign also several facilities are being provided by the Government of India. The present indigenous production of nitrogen fertilizers is about 4,29,000 tons of ammonium sulphate. This does not meet the requirements fully and therefore in 1954 it was planned, to import 1,00,000 tons of ammonium sulphate. The use of superphos and bonemeal is encouraged by subsidizing to 25 per cent. of their cost price. This subsidy is paid equally by the Government of India and the State Governments. Railway freight is another factor which increases the cost of fertilizers considerably, particularly at places away from the factory or from the port. To provide incentive to farmers to use the fertilizer in greater quantities, railway freight charges have been equalised on all-India basis and pool price of ammonium sulphate has been fixed at Rs. 315 per ton delivered by any rail head destination in India. The incentive for the use of green manure is provided by the Government of India through the G.M.F. Plan of granting 50 per cent. subsidy on green manure seed distributed to cultivators. The subsidy is shared by the Government of India and the State Governments on equal basis. It is hoped that all these incentives could result in the increases of area under the new method and consequently lead to increased production of paddy. As laid down in the Five Year Plan the target of excess production of paddy has already been achieved and in the times to come, India will not only be a self-supporting country but an exporting one in this commodity.

ANNEXURE I
Statement showing progress of Japanese Method of Paddy Cultivation in India during 1954-55

Serial No.	Name of the State	Total Acreage	Actual average yield per acre by Local Method (in mds.)	4	5	6	7	Estimated addl. cultivation (in Rs.)		Increased return per acre in terms of money by J. Method (in Rs.)	No. of experimental farms on which tried
								Local Method	J. Method		
I	2	3	4	5	6	7	8	9	10	11	
1	West Bengal	61,839	20	39	43,000	19.46	130	0 0	228 0 0	64 8 0	6
2	Assam	30,000	—	—	5,536	5.16	64	0 0	78 0 0	50 0 0	13
3	U. P.	35,070	—	—	9,600	7.66	115	0 0	204 0 0	96 0 0	17
4	Madhya Pradesh	1,460	20	53	2,110	40.46	145	0 0	220 0 0	342 0 0	8
5	Orissa	1,242	22	39	1,004	22.64	611	0 0	126 0 0	143 0 0	8
6	Pepsu	3,727	22	30	1,090	8.18	103	0 0	156 0 0	43 0 0	2
7	Madhya Bharat	15,262	16	32	10,495	19.25	105	0 0	247 0 0	45 0 0	2
8	Travancore-Cochin	1,060	43	65	842	22.24	164	0 0	303 0 0	220 0 0	4
9	Mysore	28,070	29	40½	15,216	15.17	212	0 0	278 8 0	140 0 0	7
10	Rajasthan	1,962	25	60	1,500	21.40	160	0 0	271 0 0	250 0 0	1
11	Bombay	4,553	31½	42½	5,654	34.77	119	4 0	304 2 0	349 0 0	12

12	Suarashtra	.	.	95	26	44	51	15.03	199	0	0	35	0	0	196	0	0	2			
13	Coorg	.	.	933	33½	40½	427	12.81	197	0	0	304	0	0	120	0	0	3			
14	Bihar	.	.	3,180	12	40	3,204	28.21	100	0	0	250	0	0	350	0	0	20			
15	Vindhya Pradesh	.	.	1,453	7½	17½	540	10.40	82	8	0	140	10	0	165	0	0	11			
16	Delhi	.	.	1,500	15	30	804	15.00	124	0	0	159	0	0	145	0	0	Nil			
17	Hyderabad	.	..	1,51,966	18	36	78,241	14.41	163	4	0	202	9	0	216	0	0	7			
18	Tripura	.	.	50	16	25	8	10.08	Not Worked out.			—	—	—	54	0	0	1			
19	Bilaspur	.	.	13	10.7	15	2	4.30	Do.			—	—	—	100	0	0	1			
20	Bhopal	.	.	100	10	30	72	20.16	Do.			—	—	—	150	0	0	2			
21	Himachal Pradesh	.	.	162	26½	31½	23	4	Do.			—	—	—	33	0	0	3			
22	Kutch	.	.	20	Not worked out.			14	19.60			Do.			..			1			
23	Madras	.	.	13,785	34½	48½	6,892	14.00	80	8	0	138	8	0	82	0	0	8			
24	Punjab	.	.	38,275	awaited.			6.52	251	12	0	309	10	0	awaited.			7			
25	Andhra	.	.	5,923	44	53	1,851	8.75	156	0	0	216	0	0	29	0	0	3			
26	Ajmer	.	.	—	—	Nil	—	—													
27	Manipur	.	.	—	—	Nil	—	—													
28	Andaman Islands	.	.	—	—	Nil	—	—													
29	Jammu & Kashmir	.	.	—	—	Nil	—	—													
TOTAL				.	.	4,01,700 acres	197,033 tons	15.99 Mds.													
Average				.	.	.															

NOTE.—The Japanese Method of paddy cultivation was not adopted in the States of Ajmer, Manipur, Nicobar & Andaman Islands and Jammu & Kashmir during 1953-54.

ANNEXURE

Statement showing progress of Japanese paddy cultiva

S. No.	Name of State	Targets laid down during 1953 in acres	Targets achieved during 1953 in acres	Estimated additional pro- duction in Tons by Jap Method	Estimated additional yield per acre in mds.
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1	2	3	4	5	6
1	Orissa . . .	2,528	1,242	1,004	22.64
2	Mysore . . .	20,000	28,070	15,216	15.17
3	Bombay . . .	750	4,553	5,654	34.77
4	Saurashtra . . .	100	95	51	15.03

II

tion in India during 1953-54 and targets for 1954-55

Name of six farmers who harvested the highest yield (in mds.) (per acre)	Estimated cost of cultivation per acre (in Rs.)		Increased return per acre in terms of money by Jap. Method (in Rs.)	Targets fixed for 1954 by Govt. of India (in lakh acres)
	Local Method	Japanese Method		
	7	8	9	10
Mds.				
1. Shri Abdul Wahab . . .	98	61 0 136 0	143 0	2.50
2. Shri R. C. Patel . . .	97½			
3. Shri C. B. Naik . . .	90			
4. Shri Benudhar Behra . . .	85			
5. Shri Bushwarbar Mahanty . . .	82			
6. Shri G. D. Sharma . . .	75½			
1. Shri Appaji Gowda . . .	98	212 0 278 8	140 0	0.20
2. Shri A. S. Bangaru . . .	79			
3. Shri Sidde Gowda . . .	120			
4. Shri Gopalaraje . . .	76½			
5. Shri Doddahonnappa . . .	117			
6. Shri B. Gangadharan . . .	124½			
1. Shri Ram Chandra Bhonsle . . .	120	119 4 304 2	349 0	1.00
2. Shri Deoba Raghu Patel . . .	120			
3. Shri Damji Saluji Salade . . .	115			
4. Shri Babu Rao Patil . . .	112			
5. Veyenkat Rao Bhago Patil . . .	103			
6. Shri Yeshwant Bhawe . . .	94			
1. Shri Vali Mohd.	77	199 0 351 0	190 0	0.20
2. Shri Jiwan Vasta . . .	67			
3. Shri Vithal Ramaji . . .	64½			
4. Shri Mohan Ruda . . .	62½			
5. Shri Kanji Haraji . . .	58			
6. Shri Damaji Kadva . . .	63			

1	2	3	4	5	6
5	Coorg . . .	900	933	427	12.81
6	Vindhya Pradesh . . .	1,500	1,453	540	10.4
7	Delhi . . .	3,000	1,500	804	15.00
8	Assam . . .	50,000	30,000	5,536	5.16
9	Madhya Pradesh .	5,000	1,460	2,110	40.46
10	Travancore-Cochin .	1,060	1,060	842	22.24

	7	8	9	10
	Mds.			
1. Shri V. K. N. Shetty . . .	127½	197 0	304 0	120 0 0 10
2. Shri V. K. Venkatasubha Shetty . . .	132½			
3. Shri B. G. Nangunda . . .	121			
4. Shri A. M. Ganapathy . . .	113			
5. Shri K. M. Moonnapa . . .	111			
6. Shri K. Ponnauna . . .	108½			
1. Shri Mangal Singh . . .	60½	82 8	140 10	165 0 0 25
2. Shri Har Parshad . . .	59½			
3. Shri H. H. P. P. Singh . . .	59½			
4. Shri A. Pratap Singh . . .	55			
5. Shri M. Partap Singh . . .	50			
1. Capt. Kanwar Singh . . .	64½	124 0	159 0	145 0 ..
2. Shri Nair Singh . . .	84			
3. Shri Bhaskar . . .	68			
4. Shri Shashi Bhushahwar . . .	60½			
5. Ch. Kartar Singh . . .	59½			
6. Shri Joginder Singh . . .	50			
1. Shri Dina Nath Dutta . . .	97½	64 0	78 0	50 0 1 00
2. Shri Tukheswar Bera . . .	92			
3. Shri Muktiram Goswami . . .	89			
4. Shri Gopal Ch. Barua . . .	88			
5. Shri Kamal Ch. Hazarika . . .	85			
6. Shri Rameshwar Lal Maskara . . .	84			
1. Shri Narayanlal Gopalsao . . .	117½	145 0	220 0	342 0 2 00
2. Shri Dhoduji Ganaji Borkar . . .	95			
3. Shri Nathu Rongdi Tarone . . .	90			
4. Shri A. D. Joshi . . .	87			
5. Shri Shankar Lal Srivastava . . .	83½			
6. Shri Lakshman Rambhan Pawar . . .	79½			
1. Shri P. Sivagurunatha Pillay . . .	96½	164 0	303 0	220 0 0 20
2. Shri S. Muthu Krishna Pillay . . .	91½			
3. Shri N. Narayanan Unnithan . . .	86½			
4. Shri A. Sivan Pillay . . .	80½			
5. Shri Thomman Uthuppan . . .	76½			
6. Shri S. H. Ramasubramanian . . .	74			

1	2	3	4	5	6
11. Himachal Pradesh	.	400	162	23	4.00
12. Punjab	. . .	47,000	38,275	8,907	6.52
13. Hyderabad (Dn.)	. . .	399,240	151,966	1,78,241	14.41
14. Madras	. . .	64,720	13,785	6,892	14.00
15. Andhra	. . .	10,665	5,923	1,851	8.75
16. Tripura	. . .	50	50	18	10.08
17. Kutch	. . .	50	20	14	19.7
18. Manipur
19. Jammu & Kashmir
20. Ajmer
21. Andaman & Nicobar Islands.
22. Rajasthan	. . .	5,000	1,962	1,500	21.40

7		8		9		10
		Mds.				
1.	Shri Jorawar Singh . . .	64	Not worked out	33	0	0.05
2.	Shri Nihal Singh . . .	48				
3.	Shri Gunghar . . .	44				
4.	Shri Gauru . . .	44				
5.	Shri Nanak Chand . . .	40				
6.	Shri Tulsi Ram . . .	39½				
1.	Shri Sham Sher Singh . .	96½	251 12	309 10	..	1.50
2.	Shri Manager National Co- op. Farm, Garhi Singhan .	90½				
3.	Shri Fathe Singh . . .	86½				
4.	Shri Neki Ram . . .	83				
5.	Shri Jwind Ram . . .	82½				
6.	Shri Daljit Model Farm, Chopri	79½				
1.	Shri Dharmapuram Heemareddy	145	163 4	202 9	216 0	0.50
2.	Shri Gobadi Anjiah . . .	113½				
3.	Shri Gudimala Seshachari .	109½				
4.	Shri Manikrao . . .	105½				
5.	Shri Venkatreddy . . .	102½				
6.	Shri Bhoj Reddy . . .	100½				
1.	Shri P. R. Vijayaraghava . .	117½	80 8	138 8	82 0	1.00
2.	Shri K. Srinivasa Iyer . .	79½				
3.	Shri Ekambara Nathar . .	83				
4.	Shri Muthiab Mirasdar . .	97½				
5.	Shri J. Mahadeva Iyer . .	88				
6.	Shri Muthu Kumar . . .	82½				
1.	Shri Meka Ven Kayya . . .	66½	156 0	216 0	29 0	1.50
2.	Shri S. Ramachandra Rao .	78½				
3.	Shri Katamreddy Venkataram Riddy . . .	46½				
4.	Shri M. Venkatramamiah .	76½				
5.	Shri A. V. V. Suryanarayana Raju . . .	97½				
6.	Shri M. Ramunaidu . . .	61				
1.	Shri Man Mohan Ghose . .		Not worked out	54	0	0.15
2.	Shri Paresh . . .					
3.	Shri Abdul Khalek . . .					
4.	Shri Tilak Ch. Nara . . .					
5.	Shri Syed Abdul Majid . .					
6.	Shri Abdul Malick . . .					
Paddy cultivated for the first time-Data not available.		Not worked out				Nil
	Nil	..	..	..		0.05
	Nil	..	..	..		0.20
	Nil	..	..	..		Nil
	Nil	..	..	..		Nil
.. .. .	..	160 0	271 0	250 0		0.20

ANNEXURE III

JAPANESE METHOD OF PADDY CULTIVATION

Targets for each State of the Indian Union during 1954-55

Serial No.	Name of the State.	Area (Lac acres)
1.	Bihar	4.00
2.	Eastern & Western U.P.	2.00
3.	West Bengal	2.00
4.	Assam	1.00
5.	Tripura	0.15
6.	Manipur	0.05
7.	Orissa	2.50
8.	Andhra	1.50
9.	Madras	1.00
10.	Hyderabad	0.50
11.	Mysore	0.20
12.	Bombay	1.00
13.	Saurashtra	0.20
14.	Coorg	0.10
15.	Travancore-Cochin	0.20
16.	Madhya Pradesh	2.00
17.	Madhya Bharat	0.30*
18.	Vindhya Pradesh	0.25*
19.	Bhopal	0.10
20.	Punjab	1.50*
21.	P.E.P.S.U.	0.10*
22.	Rajasthan	0.20*
23.	Himachal Pradesh	0.05
24.	Kashmir & Jammu	0.20
TOTAL		21.10 or say 2 million.

*Agreed to in the discussion on States' G.M.F. Programme.

ANNEXURE IV

State	Acre transplanted so far during 1954-55
Madras	4,122
Bombay.	46,292
West Bengal	23,320
Uttar Pradesh	35,825
Andhra	29,096
Bihar	20,622
Madhya Pradesh	7,032
Orissa	1,812
Assam . . . . .	..
Jammu & Kashmir. . . . .	..
Madhya Bharat . . . . .	..
Hyderabad	1,07,272
Mysore	86,493
PEPSU . . . . .	..
Rajasthan . . . . .	..
Travancore-Cochin	1,510
Saurashtra	19,025
Ajmer . . . . .	..
Bhopal	280
Delhi . . . . .	..
Himachal Pradesh	521
Kutch	Nil
Manipur . . . . .	..
Coorg	10,056
Tripura	6,600
Vindhya-Ghal Pradesh	5,780
	<u>4,15,658</u>

Minister for Agriculture's Circular letter

NO. XV

APPENDIX IX

Draft Article

GROWING RICE THE JAPANESE WAY

(By Dr. Panjabrao S. Deshmukh, Union Minister for Agriculture)

Signal success has been achieved in the stepping up of rice production in India by the introduction of a new scientific technique of paddy cultivation—popularly known as the Japanese method—which was initiated by the Government of India in the middle of March 1953. The encouraging results obtained have been well-nigh beyond expectations and augur well for the future.

In 1953-54, this improved method was practised more or less on a limited scale in 25 States over an area of a little more than 4 lakh acres, but even so the gains were significant and impressive, recording an estimated yield of nearly 6 lakh tons of paddy in place of about 2 lakh tons at even 1120 Lbs. per acre which is the average production per acre for 1953-54. This average was lower in previous years. The maximum yield obtained in many individual cases exceeded 80 to 100 maunds per acre, while it is reported to be as high as (161½) maunds in West Bengal and 145 maunds in Hyderabad.

The highest average yields per acre secured by the Japanese method last year were 65 maunds in Travancore-Cochin, 60 maunds in Rajasthan and 58 maunds in Madhya Pradesh. The average additional output per acre was the largest in Madhya Pradesh with 38 maunds, followed by 35 maunds in Rajasthan and 28 maunds in Bihar.

Convinced of its usefulness, Government decided to place the campaign for the promotion of the Japanese method on systematic lines and to organise it on a country wide scale. A concerted drive to intensify it was launched on its first anniversary this year, the target set for 1954-55 being 2 million acres. This objective cannot be regarded as too difficult of fulfilment when the total land under paddy in the country is about 76.6 million acres.

Government Measures

Like last year, field work is at present being carried on primarily through the existing extension staff of the State Governments and village-level workers in the community development projects. In addition, the Government of India have appointed six campaign officers in the different regions. Apart from functioning as the 'eyes and ears' of the Central Government for the purpose of the campaign, these officers render every possible help to the States in their programme of publicity and ensure attainment of the target laid down.

The Central Government have offered all the facilities to the States to take advantage of the new method. Apart from the assistance available under the grow-more-food programme for loans and subsidies for improved varieties of seeds, chemical fertilisers and minor irrigation, facilities have also been extended for specific items of work connected with the campaign such as raising central nurseries, purchase of intercultural implements, projectors and propaganda vans, exhibition sets, award of Community prizes, meeting establishment charges of staff for demonstration and publicity work, etc. etc. Arrangements have also been made for the free supply of substantial quantities of ammonium sulphate, both from imports and indigenous supplies, to the States for demonstration purposes.

Training facilities are provided with financial assistance from the Central Government at the Bombay Government's training centre at Karjat. 8 Candidates from the States of Rajasthan, Orissa, Hyderabad and Vindhya Pradesh are at present undergoing a six months' training course there.

The other steps taken by Government relate to the setting up of centres for training farmers in the new technique, laying of demonstration plots on the cultivators' fields as well as on Government farms, reduction in the price of fertilisers, establishment of a larger number of depots for the distribution of seeds and fertilisers and provision of short-term credit facilities to farmers for purchasing seeds and fertilisers. Three hundred specimens of paddy-weeders (250 wooden and 50 steel) have been fabricated and distributed to the States free of cost for purpose of popularisation.

A large volume of publicity material, explaining the main cultural practices in the Japanese process, in the form of posters, leaflets, folders, flannel-graphs and film-strips, has been supplied to the States, the actual propaganda work

and field demonstration being the responsibility of the State Governments. The States have also been promised financial help for expenditure on printing publicity literature in local languages. About 50 films in English and Hindi, obtained from the U.S. Technical Co-operation Mission, have been distributed to the States free of cost.

Apart from the Central and State Governments, non-official agencies are as well playing an active role in the furtherance of the campaign. The Government of India have in particular received valuable help from the Kōra Gramodyog Kendra and the Gandhi Samarak Nidhi. The Bharat Sewak Samaj is also co-operating in this effort.

Not Entirely New

The Japanese method is not entirely new to India. Some of the practices employed by paddy-growers show that most of its important features have already been in vogue in several parts of the country. What is aimed at now is to evolve and propagate a unified system incorporating all the essential features, with such variations as are necessary to suit local conditions. In Japan, the system has been perfected and is being extended with outstanding success.

The principal features of the method are (1) preparation of raised seed-beds—about three inches above the ground-level—leaving enough elbow-room between them for weed-clearance, (2) selection of the right type of seeds, (3) lesser seed-rate, which may be as low as 10–12 lbs., (4) Transplanting in lines, (5) Reduced number of seedlings per hill, (6) proper interculturing, and (7) heavy application of manure and fertiliser.

The doses of fertilisers vary from place to place, depending upon a number of factors, such as manurial requirements of soil, time of transplanting, economic position of the cultivators, availability of irrigational facilities and climatic conditions. However, the doses recommended by the Centre are 100 lbs. of ammonium sulphate mixed with 100 lbs. of superphosphate per acre twice—first just before puddling the soil and second after transplanting the seedlings—, but these quantities are subject to local adjustments.

Production Estimates

Rice production in 1953-54 has exceeded the 1952-53 figure by 4.6 million tons to establish an all-time record of 27.1 million tons, as against the calculated target of 25.6

million tons for 1953-54. This more or less equals the target of 27.2 million tons fixed in the Five-Year Plan for 1955-56. The Japanese method, which was adopted during 1953-54, by way of an experiment and a venture, has contributed a great deal to this tremendous increase. It is also a patent fact that the essentials of the method have as a result of our repeated appeals to the cultivators been applied to cereal production such as bajra, maize and jowar.

According to the 1953-54 estimate, the production of all the foodgrains (cereals and pulses) in India is nearly 66 million tons, exceeding the 1955-56 plan target by 4.4 million tons. The *per capita* consumption of foodgrains at the end of the plan period was envisaged at 15.81 ounces per adult per day and the balanced diet laid down by the Nutrition Advisory Committee is 17 ounces per adult per day. The population of India on March 31, 1954, was estimated at 374 millions, according to which the present *per capita* availability of foodgrains works out to 17.65 ounces, which is .65 ounce higher than the balanced diet.

High hopes have been raised by the remarkable success that has attended the Japanese method of rice-growing. We are already well on the road to greater production and have now become not only self-sufficient in this coveted cereal but also in a position to export some of its better varieties to our traditional customers.

MINISTER FOR AGRICULTURE'S CIRCULAR LETTER
NO. XV

APPENDIX X

DIVISION OF AGRICULTURAL ENGINEERING
INDIAN AGRICULTURAL RESEARCH INSTITUTE,
NEW DELHI

Interim report on the general features of the Russian tractor Model XT.3-7 by Shri R. V. Ramiah, Head of the Division of Agricultural Engineering, I.A.R.I., New Delhi.

Four tractors of this type have been imported in this country from Russia. One out of these four has been received in this division through C.T.O. on 29th October 1954 for field test and trial.

It is a four wheel type tractor having twin cylinder engine, the cylinders being placed vertically, petrol driven, with magneto ignition. Its drawbar H.P. is 8 and rated H.P. is 10, according to the maker's specification.

The engine is water cooled. There is no storage battery and starting is by hand cranking. It is equipped with three lights—two front and one back, which receive current from generator only when the engine is in operation.

The engine runs entirely on petrol and hence starting and stopping trouble as in case of kerosene engine are eliminated. However, the petrol engine may not be economical for agricultural operations in India.

It has got belt-pulley and power-take-off arrangements. In addition, there is another power-take-off arrangement from the rear wheel which gives the same R.P.M. as that of the wheel.

A few special features of the tractor are enumerated below:

1. It has four forward gears and one special gear to adjust the speed to suit the operation of certain special implements. The four forward gears excluding the special gear, can be converted

to reverse by manipulating one lever from forward to reverse position.

2. The tractor is very flexible in that the length, the width and the height of the tractor can be adjusted to suit different operating situations, such as working in orchards, in row crops and general operations.
3. The operator's seat and steering can be reversed, putting the engine at the rear of the operator, which makes it specially suitable for working the pushing type of implements.
4. The tractor is equipped with hydraulic power lift for lifting and lowering the integral implement. Also there is a fixed draw-bar to take up hitch-type implements.

The above tractor is under test with a single bottom 12" mould-board plough, operated by hydraulic power lift. The plough is supplied by the same firm. It is equipped with a jointer and discoouter. So far it has been tried on a plot with sandy-loam soil and after the harvest of kharif crop. The depth of ploughing has been between 6" to 9".

As a 6" depth is preferred for general ploughing in regular fields, the observations collected for the first three days are on that basis:

1. Depth of ploughing	6"
2. Width of the furrow	12"
3. Areas ploughed per hour	0.274
4. Gallons of petrol consumed per hour	0.82
5. Gallons of petrol consumed per acre	2.972
6. Acres ploughed per gallon of petrol	0.445
7. Gear used	1st (approx)
	(speed 2.5 M.P.H.)

(Sd.) R. V. RAMIAH,
Head of the Division of
Agricultural Engineering.

MINISTER FOR AGRICULTURE'S CIRCULAR LETTER
NO. XV

APPENDIX XI

Welcome speech of Dr. Panjabrao Deshmukh, Minister for Agriculture, delivered on 26th November 1954 at the annual meeting of the Indian Society of Agricultural Statistics.

Mr. President, Fellow Delegates and friends,

I am happy to have this privilege to extend to you all a hearty welcome to this 8th Annual meeting of the Indian Society of Agricultural Statistics. To you, Sir, we are most grateful for the invaluable guidance you have continued to offer to the Society since its inception in spite of your numerous pre-occupations in the most exalted office in the Indian Union which you adorn. This, Sir, we take to be a token of your appreciation of the useful role the Society is playing in the field of agricultural development of the country.

Of the many shortages the world was facing after the last world war, the shortage of adequate and reliable facts was perhaps the most acute. The gaps in our knowledge were so considerable that much of our planning in agricultural production and distribution seemed utterly to lack firm foundations. The technique of filling the gaps by collection of facts in the minimum of time and with the least of efforts was, therefore, the genuine need of the day. The statisticians are the experts, who specialise in the technique of collection of facts, and the want of trained statisticians who had the know-how of collecting facts was acutely felt. It was under these circumstances that this Society was born 8 years ago under your inspiring initiative to promote the study of statistical methods for collecting and interpreting facts.

It will, therefore, not be out of place if in welcoming you Sir, I took a few minutes to survey the achievements since the Society was established. In your first address to the Society, you dealt with the deficiencies of agricultural statistics. Statistics of acreage under crops was adequate and fairly reliable, but only in areas covered by the patwari system. Elsewhere there was no agency to collect them

and the statistics available were largely a guess work. Regarding production you told us that it was time we dispensed with the method of personal judgment and guesses for estimating crop yields and instead urged the Society to promote the use of method of random sampling with objective measurement of yield. Although livestock census was taken every five years and annual figures were also available in many States, the statistics of livestock could not be said to be very accurate since insufficient attention was paid to the work of enumeration at the primary stage. On the statistics of number and size of holdings and their principal characteristics, you remarked that there was practically very little that was available, which could tell us about the agricultural structure of the country and how it could be bettered through land reform and other measures. If we look at the progress made against this background I feel, Sir, that we have made appreciable advance.

Let me first take the acreage statistics. In the surveyed areas with patwari agency there was an urgent need of providing adequate supervision of the work of area enumeration. This, I am happy to state, was done in a manner that not only achieved a salutary effect on the field work by the primary agency, but had the additional merit of providing independent estimates against which the statistics obtained from the unusual census could be checked. These sample supervisory checks by spot inspection are gradually forming an integral part of the acreage statistics in the areas possessing the patwari agency.

The need of areas which have been surveyed but which do not possess the patwari agency is obviously the establishment of the reporting agency. This was done in one or two States. However the creation of an agency solely for the purpose of collecting statistics was an expensive proposition and was unacceptable to some of the State administrations. The solution was to develop a suitable sample method so that on the one hand the use can be made of survey measurements for each field, and on the other hand estimates of the requisite accuracy can be obtained without having to appoint an elaborate field staff all over the States. Such a survey method was developed and satisfactorily tried out on major crops in Orissa, Bengal and Bihar.

The problem of areas which are unsurveyed and where no agency is available is admittedly the most difficult. Unless these areas are surveyed the only solution is to develop sampling method using approximate methods of

mapping and measurement in selected areas using the method of area sampling. I am glad to be able to say that this method has been successfully tried in unsurveyed tracts of some States. With the extension of this method to cover the whole of the unsurveyed area which is what we propose to provide for in the next 5 Year Plan, we should be able to provide a fairly complete and reliable picture of area statistics.

I will not deal at any very great length with improvements made in statistics of crop yields. The primary need of crop yield statistics was the development of a method of sample harvesting which on the one hand was simple and inexpensive enough to be entrusted to the available field staff in the States and on the other provided unbiased estimates of yield. Investigations for developing such a method proved so successful that within less than 8 years the method of random sampling came to be adopted as a regular annual measure in most States of the Union on major crops.

The significance of this achievement is easily grasped when one compares the situation with that in other countries. Essentially, the method of estimating crop yield in all countries whether economically advanced or under-developed is the same as the traditional method in India. The only difference between the advanced and under-developed countries is that whereas in the former crop reporters include farmers resident in the rural areas, in under-developed countries crop reporters are usually Government officials. These official reporters are naturally much less numerous than the voluntary crop reporters in advanced countries and consequently estimates of yield derived from such reports are likely to be more inaccurate than those based on the more numerous voluntary reporters. It must, nevertheless, be admitted that crop reporters' data even in the advanced countries are frequently subject to large and undeterminate biases. The only countries besides India which might be said to have made notable progress in the adoption of the objective method of crop sampling are Japan and Germany. Considered against this background the introduction of the sampling method for crop estimation in India must rank as one of the most significant achievements of the last decade.

We still have the problem of the production of minor crops. The improvement of earlier forecasts also remains to be undertaken. In this matter I should like to refer to the organization and the method followed in Japan. This

country has a field staff of over 12,000 working under the statistics division of the Ministry of Agriculture and charged with the duty of collecting agricultural statistics. No effort is spared in introducing refinement in methodology for improving agricultural statistics. I have known no country which possesses so elaborate an organization for collecting agricultural statistics as in Japan and one which has made such great headway in the introduction of improved sampling techniques and objective measurements in their system of collecting agricultural statistics. I would, therefore, like to commend to the attention of the Society a careful study of the Japanese system since I hope it will be of great value to us in solving many of our own problems in this field.

The problem of livestock numbers is much the same as the problem of acreage statistics in surveyed areas of the country. I will not, therefore, deal with it here at any length except to state that the possibility of adopting sampling method for the collection of statistics of livestock numbers has been investigated and found practicable as a means of improving the reliability of primary enumeration.

The improvement in our agricultural statistics, while originating through and inspired by the Indian Council of Agricultural Research and the Ministry of Agriculture, are justly the fruits of the co-operation and interest of the agricultural statisticians all over the country, who form the backbone of the Society. The progress made in a sense can, therefore, be looked upon as being no less due to the activities of the Society. The Society aims at achieving even greater progress in the years to come and trusts that it will continue to enjoy the privilege of your association with it. I now request you, Sir, to inaugurate this session.

APPENDIX XII

PRESIDENT'S INAUGURAL SPEECH AT THE EIGHTH ANNUAL MEETING OF THE INDIAN SOCIETY OF AGRICULTURAL STATISTICS ON 26TH NOVEMBER, 1954.

I am happy to be present here today and address you on the occasion of the 8th Annual Meeting of the Indian Society of Agricultural Statistics. The record of work of the Society during the past 8 years gives me great satisfaction and I should like to take this opportunity to congratulate the Society on its achievements. To two things I should like to make special reference. On the occasion of your annual meeting three years ago I drew your attention to one great lacuna in India's agricultural statistical system, namely, a census of agricultural holdings. I impressed upon you the need for conducting it at the earliest possible date. I also suggested that if we did not have the personnel and money to undertake the complete census, we should at least retabulate on a sample basis the data available in Patwaris' records and collect additional information on a sample of holdings in the country. I further urged that we should plan our census within the framework of the programme drawn by the F.A.O. I am glad that we are now in the midst of India's first agricultural census and I hope its results will be made speedily available to all concerned.

The second activity of the Society to which I should like to refer is the publication, during the year, of the book 'Sampling Theory of Surveys with Applications' written by Dr. Sukhatme. The Society's work in promoting the use of sampling methods for collecting agricultural statistics is too well-known to need repetition. It is gratifying that sampling methods developed in India by workers associated with your society have not only come to be accepted as the normal methods of collecting agricultural statistics in our country but have had considerable influence on the methods practised in other countries as well. These methods were now being adopted under the F.A.O.'s programme in different countries, such as Ceylon, Burma and Indonesia in Asia and Columbia in South America.

Today I want to place before you a somewhat different aspect of agricultural statistics. In the past, we have almost exclusively paid attention to the contribution of statistical science to the improvement of basic agricultural statistics, such as acreage, yields, livestock numbers, etc. Although basic, these statistics are not adequate to serve the purposes of policy makers in establishing national plans for increasing agricultural production. They also do not suffice for judging the progress of the plans. For formulating plans for increasing production, we require information on increase in yield expected under actual farming conditions from different agricultural improvement measures such as fertilizers, irrigation, improved varieties of seed and so on. In the absence of this information, results obtained at experimental farms have alone to be relied upon. It has to be remembered, however, that the number of experimental farms in the country is small and further the fertility of the soil and the management of experimental farms are superior to those in cultivators' fields. For these reasons it is necessary to verify the effects of different improvement measures under actual farming conditions by carrying out trials on cultivators' fields. In order that such results should be truly representative of the farmers' conditions, the trials cannot be confined to the lands of the progressive farmers but must be extended to all kinds of cultivators in their due proportion. Further, the trials themselves must be simple enough to enable an ordinary cultivator to carry them out and serve as a visual demonstration and at the same time be in accordance with the principles of scientific experimentation.

The question arises as to how far it is feasible to conduct such trials on cultivators' fields. After all, an average cultivator is a poor man working on a small, usually unfenced area of land and is pre-occupied with his daily routine. He is hardly in a position to divert his limited resources to experiments which might disturb his normal operations on the field or in which there is a risk of incurring any loss. A correct psychological approach to win his confidence and gain his co-operation thus becomes the first step before initiating a successful experimental programme of this type. Then statisticians must plan the work in such a manner that the cultivator will be persuaded to take up these trials and would have no occasion to repent for having done so. I am glad to learn that during the last few years we have made commendable progress in planning experiments along these lines in India. I might refer to the extensive trials of this kind undertaken in the

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Community Project areas for comparing the effect of different fertilisers on crop yields. Another example is that of the experimental programme for demonstrating the value of the Japanese method of cultivation of paddy as compared to the farmer's common practice in this country. The plan for this experiment, I am told, is extremely simple and is one which I as a farmer can readily appreciate. Thus in experiments with Japanese method of cultivation all that the farmer is expected to do is to divide his land into two approximately equal portions in one of which, selected at random, he tries the Japanese method of cultivation and in the other he grows paddy in accordance with the normal procedure. A continuous round of supervision is provided in ensuring that the field is cultivated, seeded, planted and harvested in accordance with the requirements of the two treatments. It is only at harvest time that the plots are harvested in the presence of the supervisor.

The demonstrational value to the cultivator of such trials is evident. He can readily grasp for himself the difference arising between one treatment and another. At harvest time, he obtains a more direct evidence of how much more one treatment has yielded than the other. It is a matter of satisfaction that the experiments already carried out have proved successful and the Japanese method is being adopted on an extensive scale as not only the results achieved are demonstrable but the method too is none too difficult and complicated. I visited a farm near Poona the other day and was pleased to see the rich harvest that was expected. I was told that in that State while only 6,000 acres were under this Japanese method two years ago, this year they have no less than 200,000 acres.

There are bound to be a large number of practical difficulties in experimenting in fields of cultivators. Firstly, some of the fields are likely to be inaccessible. Secondly, many of the cultivators may not be willing to co-operate. I have been assured, however, that these difficulties are not insurmountable, and that experience has in fact shown that after the initial phase, cultivators offer spontaneous co-operation in taking up the trials. I notice that you are giving the problem the thought that it needs by organising in the programme of the Society's meeting a symposium on experiments on cultivators' fields. I feel sure you will thresh out the various difficulties in this symposium and give a solution acceptable to all. Information obtained by these methods is vital for planning extension of the improved measures among the cultivators. In fact, to my

mind, such trials constitute the only means of taking the results of research to the farmers' doors.

When on the basis of such trials a development programme is put into operation, the task of assessing the progress made poses a further problem for the statisticians. To take a specific example, let us consider the programme for distribution of ammonium sulphate. In assessing additional production from this fertiliser, it is usual to multiply the total quantity of fertilizer distributed under the programme with the rate of increase in yield per ton of the fertilizer applied. The method is apparently not satisfactory for several reasons. Perhaps the fertiliser may have been applied in doses different from those recommended to the farmer. The rate of response assumed may not hold good under the farmers' conditions and in any case cannot be constant in all seasons. The problem of assessing additional production thus involves experimentation to determine the response actually secured by the farmer. The problem is somewhat similar to that I have referred to above, *viz.*, carrying out trials in cultivators' fields, but perhaps more complicated mainly owing to the necessity of finding comparable plots of land to those on which the farmer may have already applied the fertilizer. This problem also needs your careful consideration; because a continual appraisal of the results achieved in our development plans is essential for their progress on sound lines.

I must refer to another problem which is assuming urgency and which is of paramount importance in a Welfare State where land reforms on an extensive scale are in the process of being introduced. I would state the problem and it is possible that answers to questions I am raising are already available but not known to a man like me who has not made a special study of the subject or carried out agricultural operations as a farmer. There used to be an opinion held by economists in the last century that the production of agriculture acre per acre was larger on small holdings of peasant proprietors than on large farms of big farmers. Those were the days when agriculture was not mechanised in any country, when chemical manures were not available and when irrigation on the scale now feasible was not possible. Today we have an ever-increasing measure of mechanisation not only in new countries with vast uncultivated tracts and, comparatively speaking, small population, but also in a country like India with its vast population and tiny holdings, whenever a sizable holding can be carved out by an enterprising

farmer or capitalist. Partial mechanisation is being introduced even by comparatively small cultivators. Co-operative farming has not made much progress and there is perhaps no collective farming at all in this country. But there are other countries where we have both of these on a larger scale. I wonder if any study has been made to test the validity or otherwise of the old theory in present conditions.

I think a study of this question is necessary in this country where there is a strong opinion held in very influential quarters that there should be a ceiling put on the size of holdings. There is also the question as to whether this ceiling should apply only to new holdings that may be created as a result of cultivation of hitherto uncultivated land or also to existing holdings and whether the land held by a cultivator in excess of the ceiling should be taken away from him. I am concerned here only with the effect of any such measure on production and I suggest that a statistical study should be undertaken by the Society and the results actually being achieved in small peasant proprietors' holdings and large farms owned and cultivated by an individual, a limited liability company or a co-operative society or by the collective method in this country or in other countries so far available, should be studied. It is obvious that published data will not be as accurate as those obtained experimentally. But in this case the latter are even more difficult to get than in the other cases mentioned above. But a comparative study statistically even of available data will be of very great importance and may indicate deeper investigation experimentally. As I have said, I am not well posted in such matters and may be that such studies have been made and their results are already available. Even then I would like them to be collected and collated and made easily available so that they may prove helpful in determining a question of great National importance to this country at this stage.

Such are the contributions which agricultural statisticians, as a layman would understand, can make to the planning of agricultural production. Although in India we are now self-sufficient, the need for continued effort for improving the agricultural production to keep pace with the population remains. Moreover the problem of maintaining steady improvement in production is likely to present increasing difficulties with years to come. For these reasons it appears to me of paramount importance that we should use all the methods that science has made

available for increasing agricultural production. I have particular reason to emphasize this aspect at this meeting. We have amidst us today the staff and trainees of the International Training Centre on Experimental Designs organised by the F.A.O. jointly with the Government of India. The trainees have come from 14 different countries from Egypt at one end to Japan at the other. All these countries are in need of increasing their agricultural production. If we look at the statistics of agricultural production for different countries since the war, we notice that the world production as a whole has gone up, but those who were well-fed have more to eat and those who were hungry are perhaps hungrier. That, to my mind, demonstrates the need for determined effort in making realistic plans for increasing production by scientific methods. I am therefore happy that recognising the contribution of scientific agricultural experimentation to this end, the F.A.O. has established this training centre which, I understand, is the first of its type to be conducted in any part of the world. It is a matter of special gratification to us that India has been chosen as the first venue of this centre. I believe that in many parts of the world as in India there is considerable scope for improving the contribution of statistical methods and experimental techniques to the development of agriculture. I hope the trainees from other countries will exchange notes of their experience with members of the Society who have assembled here today and learn from one another about their problems, difficulties and achievements.

I wish your conference success and hope that your deliberations will advance the method of collecting agricultural statistics and prove fruitful in the larger interests of production.

APPENDIX XIII

INDIAN SOCIETY OF AGRICULTURAL STATISTICS

Secretary's Report

1953-54

On behalf of the Council of the Society, I have pleasure in presenting to you the report of the Society's activities, for the year ending 30th June, 1954. The Society's membership during the year was 241. Of the members on the roll, 5 were Honorary members, 5 Patrons, 32 life members and 199 Ordinary Members. The membership is drawn not only from all parts of India but from abroad as well and extends over Agricultural Departments, Institutions and Universities, besides agricultural Statisticians, and the workers interested in the development of statistics, mainly in relation to agriculture. It is gratifying to report that besides the response to the Society's activities as evidenced by the existence of 241 members on its roll, the society is maintaining an additional mailing list of subscribers to the Journal which includes important research institutions here and abroad. It may be mentioned that the number of foreign members and subscribers rose from 70 to 80 during the year.

I am glad to state that the long awaited book on the "Sampling Theory of Surveys with Applications" by Dr. P. V. Sukhatme, the publication of which the Society had undertaken in collaboration with the Iowa State College, Ames, Iowa, U.S.A. has now been brought out and has proved popular among Statisticians. A copy is placed on the table. We are happy that Dr. Sukhatme author of this book, which is undoubtedly an important landmark in the literature on Sampling, is present amongst us today. The Food and Agriculture Organisation of the United Nations also supported this publication by distributing copies to member countries in furtherance of its own programme in the field of sampling. The price of the book is Rs. 25/- in India and S.5.5. (I.S.) abroad. A concession of 10 per cent. of the price of the book is being given to the members of the Society and a concession of

20 per cent. to such members of the Society who are *bonafied* teachers or students. The cost of publication of the book has come to about Rs. 15,000/-. This has caused a considerable strain on the Society's financial resources and the Society is grateful that in response to its request the Government of India has granted a donation of Rs. 10,000/- towards the publication of this book. Members will be interested to learn that French and Spanish translations of the book are being published from Paris and Mexico. The Government of India's grant will enable the Society to proceed with its plan of undertaking further similar publications. The Executive Council of the Society has decided to set up a separate publication fund for dealing with such publications.

Owing to the preoccupation with the publication of the above book only one issue of the Journal could be brought out during the period under report. A copy is placed on the table. The second issue is, however, expected to come out of the press shortly. I think it will perhaps not to be out of place to report that judging from the requests received for exchange, the Journal continues to draw great appreciation from eminent institutions and research workers in India and abroad. Among latest requests for exchange approved by the Council of the Society is one from the Soviet Academy of Sciences, Moscow.

The Hindi supplement continues to be a feature of the Journal. This represents an attempt on the part of the Society to make the subject of Statistics more widely known to the lay public. The problem of adequate finance for the printing of the Journal continues to receive anxious attention of the Executive Council of the Society. The cost of the printing such a technical Journal being very high its continued publication is made possible only through grants-in-aid received from public organisations. During the year under report such grants-in-aid have been received from the National Institute of Sciences of India, the Indian Council of Agricultural Research, and the Governments of Bombay, Orissa and Uttar Pradesh. I take this opportunity of publicly acknowledging the Society's thanks to all these organisations. Our appeal for financial assistance will, I hope, meet with similar response from other institutions whom we have approached.

The Seventh Annual General Meeting of the Society was held at Delhi in March, 1954. Due to unavoidable reasons this session had to be short. On this occasion

Dr. Loknathan, Executive Secretary of the United Nations Economic Commission for Asia and Far East gave an address entitled "Agricultural Situation in the Far East". Dr. Punjabrao Deshmukh, Minister for Agriculture presided.

An audited statement of accounts is placed on the table. The opening balance at the beginning of the year was Rs. 13,571/-/11 apart from Rs. 2,826/-/- set aside for the publication of the book "Sampling Theory of Surveys with Applications", which is included in a separate account started for the publication fund as mentioned earlier. The receipts during the year amounted to Rs. 5,704/6/10 and expenditure to Rs. 3,523/3/5 so that the balance at the end of the year was Rs. 15,752/4/4. Rs. 18,205/3/- were collected on account of the sale of the book during the year, but a balance sheet for the year on this account could not be finalised as the press bills were in the process of scrutiny and payment.

The 27th meeting of the International Statistical Institute to which the society is affiliated as a member was held at Rome in September 1953, and the Society was represented at this meeting by the Secretary and Dr. P. V. Sukhatme. At the invitation of the Institute they also participated in the Statistical Seminars organised in conjunction with the meeting. The 28th meeting of the Institute is arranged to be held at Rio de Janeiro, Brazil in July 1955. Several subjects in which the Society is interested are going to be discussed, and the Executive Council of the Society has decided that the Society should contribute papers on the following topics:—

- (1) The content of Statistical teaching.
- (2) The place of statistics in operational research.
- (3) Recent development and prospects in Survey Techniques.

APPENDIX XIV

RICE-FARMERS CAN FACE THE FUTURE WITH FULL CONFIDENCE

With the enforcement of complete decontrol on food-grains in Hyderabad and the rest of India during the first half of 1954, the sense of security that prevailed among rice farmers in the boom period preceding decontrol is gradually giving place to a sense of discomfort, if not despair.

Need the Rice Farmers of Hyderabad really become pessimistic?

In our view the situation does not warrant a sense of pessimism. A sense of realism and readiness to face the situation must be shown. The farmers should reorient their farming practices to suit the present and future price trends. Even if the Government steps in and holds up the price line at a reasonable level, the problem of producing rice at a cost lower than the present one has got to be solved, to some extent, by the rice farmers themselves.

At the prevailing wage and price level it normally costs a farmer Rs. 175 to 200 to cultivate an acre of rice* under high farming conditions, (60N 30 P205). Forty per cent. of this cost of production is accounted for, by the manure bill. In fact the manure bill is the heaviest item in the cost of cultivation. Therefore, practical ways and means have to be devised to reduce the expenditure under this item, without adversely affecting the yields. The present article is an attempt to suggest two such ways and means. The experience of the agricultural scientists, as well as the farmers of Hyderabad, has been that a manurial dose of 60N and 30 P205 in Tabi gives an average acre yield of 2,500 to 3,000 lbs. and a dose of 30N and 15P205 in Tabi would give an average acre yield of about 2,000 lbs.

*Prep. cultivation	.	.	.	.	.	19	8	0
Manures and manuring	.	.	.	.	.	84	0	0
Intercultivation	.	.	.	.	.	36	4	0
Seeds and sowings	.	.	.	.	.	25	8	0
Harvest and threshing	.	.	.	.	.	23	6	0
Total						188	10	0

According to the present practices, the bulk of the Nitrogen and Phosphorus are applied in the form of ammonium sulphate and superphosphate both of which have to be purchased from the market. It is now suggested for the serious consideration of the farmers that half the Nitrogen be replaced by green manures and green leaf manures. The green manure crops so far used were mostly Sannhemp and Dhaincha. The use of Sannhemp is universal in the Tungabhadra ayacut. In fact the practice is so deep-rooted that the rice farmer does not think of raising a paddy crop before green manuring his land. Farmers of Nizamsagar, Manair, Wyra, Paler and other project areas can follow this good example set by the farmers of Tungabhadra area. It is assumed that the P.W.D. authorities will make water available for raising a green manure crop, as is being done in the Tungabhadra area. The farmers from the non-perennial zones who form the bulk of the rice farmers have to adopt, as far as possible, newer and equally efficient green manure crops. We would strongly recommend for their adoption, the use of *Sesbania Speciosa* and *Gliricidia Maculata*, two new crops, now widely grown in Madras State.

Sesbania Speciosa:—

Seed of *Sesbania speciosa* is sown thin in raised nursery beds and watered regularly. Seeds germinate in 4 to 5 days and are ready for planting in as many weeks. Approximately 1/2 lb. (4 chataks) of seed sown in 1/100 acre gives seedlings sufficient for an acre. When the seedlings are about 9" to 12" high (4 to 5 weeks old) they should be pulled out gently and transplanted along the bunds of the paddy fields, spaced 4" to 6" apart. In Do-fasla paddy areas the nursery should be raised in June and planting done on the bunds of fields at the time of transplanting the paddy. In areas where a long duration paddy in Abi is followed by a short duration variety in Tabi, nurseries of *Sesbania* could be raised at the end of July or the first fortnight of August, and transplanted after 4 weeks. At the time of pulling out *Sesbania* for green manuring it is best to leave a few plants for seed purposes.

The chief advantages of *Sesbania* are:—

1. It does not require separate land for raising.
2. It does not need special attention or care for its growth.

3. It does not adversely affect the growth of the paddy crop, i.e., *Sesbania* does not shade the main crop paddy or have any root-effect on it.
4. The expenditure incurred for raising *Sesbania Speciosa* is hardly Rs. 5/- per acre.

Gliricidia Maculata:—

It is found suitable to raise the nursery of *Gliricidia maculata* in the months of March, April and transplant the seedlings in July-Aug. in waste lands of the village or any open space. The seedlings should be transplanted 4' to 6' apart by making pits about 1'x1'. As the seedlings are transplanted in the South-west monsoon period normally no hand-watering is needed. In case severe drought conditions prevail soon after transplanting, hand-watering is recommended. The plant does not require much after-care except occasional weeding. The plants are somewhat slow growing in the first two years of their life. But once they are well established the growth is fairly fast. From the second or usually the third year, the branches are fit to be lopped and used as green manure. From the fifth year, on an average each plant yields 150 to 200 lbs. of green matter. Thus about 20 to 30 trees planted on the borders of each cultivator's holding would yield 4,000 to 5,000 lbs. of green leaf per year.

The adoption of the above practice would bring about a saving of nearly Rs. 40/- per acre in the manure bill. The green manures will supply half the total requirements of Nitrogen. The remaining Nitrogen and the whole of P205 will have to be supplied in the form of Amm. sulphate and superphosphate. The rice farmers find that the stopping of the linking system and the general lack of finances of farmers have begun to adversely affect the use of fertilisers.

We, therefore, recommend that economy in production be effected by cutting down the weeding bill which is the second costliest item of production, by replacing hand-weeding with weeding by a rotary weeder which costs only Rs. 20/-. With its help a farmer can easily weed 5 acres of his holding without extra help. Other advantages of the weeder are that it turns the weeds into manure, deep-places the fertilisers in the root zone, aerates the soil and prunes the roots.

The cumulative effect of all these is better growth and consequent high yields of grain and straw. While hand weeding a five acre block which is assumed as an average

holding, employing manual labour would cost Rs. 125/- to Rs. 150/-, weeding the same area with a rotary weeder would cost Rs. 15/- to Rs. 20/-. The money, so saved, may be utilised for buying the fertilisers. Thus it is seen that by adopting a two-pronged drive of practising green manuring, using *Sesbania* and *Gliricidia* and employing the rotary weeder, practically the entire amount spent on manuring can be economised.

The rice farmers can thus not only be optimistic but also face the future with confidence.

In the following months we will address ourselves to the readers on the different aspects of green manuring and all that the scientists are doing to put out better manure crops. For procuring seed of *Gliricidia* and *Sesbania* please contact your nearest Agricultural Officer or the Rice Specialist. Government Main Farm, Himayatsagar. Hyderabad.

APPENDIX XV

Prior to 1946, dry sludge at Okhla and town compost manure at Badli, which had very good manurial ingredients, were going waste because no one utilised them, nor popularised them. With the object of popularising these manures and convincing the cultivators that these manures were useful both for increasing the soil fertility and the crop yields, the Delhi State Administration purchased a fleet of 20 vehicles, with a view to transport these manures to the cultivators' fields, at concessional rates. The scheme has since then been running as one of the G.M.F. Schemes subsidised by the Government of India, Ministry of Food and Agriculture every year.

METHOD OF SUPPLY

The cultivator has to make an application alongwith necessary advance to the Officer Incharge, Sluge and Manure Distribution Scheme for the supply of particular quantity of sluge or compost manure.

2. The cultivator is issued a receipt for his demand, which is entered in a register maintained for recording the indents.

3. The supplies are made in chronological order as the applications are received.

4. The cultivator is given a date when supplies will be delivered to him at his farm.

The following rates are at present charged for the supplies:—

Charges per truck load of 3 tons with different zones

	Okhla	Badli
1. Within 5 miles	12 0 0	10 8 0
2. Within 10 miles	15 0 0	13 8 0
3. Within 15 miles	18 0 0	16 8 0

Note:— (i) Beyond the radius of 15 miles, an additional charge of Re. 1/- per mile is made for manure supply to any place throughout the Delhi State.

(ii) Badli manure contains lot of small stones glass and iron pieces etc. Arrangements exist to supply sieved compost manure at an additional charge of Re. 3/- per truck.

The following table, will indicate the distribution during the various years:—

Year	Quantity distributed
1946-47	15,620 tons
1947-48	12,006 tons
1948-49	14,797 tons
1949-50	15,771 tons
1950-51	18,027 tons

The scheme was thereafter merged into Five Year Plan of the Delhi State. The following table indicates the targets and distribution:

Year	Target	Actual Distribution
1951-52 .	20,000 tons	20,322 tons
1952-53 .	22,500 tons	22,590 tons
1953-54 .	25,000 tons	25,020 tons

Larger and increased quantities of these manures are being utilised by the cultivators every year, as is evident from the above table. Thus the object of the scheme that these manures are useful and beneficial has been fully achieved. Cultivators have been convinced that these manures which are prepared out of waste can produce wealth for them by way of increased yields

MODIFICATION OF THE SCHEME REVISION OF THE TARGET.

A village wise survey conducted by the V. L. Ws has indicated that the total area under cultivation amounts to 93967 acres irrigated and 134390 acres non irrigated. At 2 truck loads for each irrigated acre and one truck load for each non irrigated acre, the total requirements of the Delhi State for manure supplies come to 966972 tons. However, for the current year i.e. 1954-55, it is proposed to distribute 10 per cent of the target laid down above. It is presumed that cultivators prepare their own compost and also buy it from other local sources.

Village-wise targets of distribution have been laid down and given to V. L. Ws through the B.D.Os for achievement during the current year. The target of distribution under the scheme has been revised to 60,000 tons against the

original target of 27,500 tons under the 5 Year Plan. The scheme is being expanded and the total fleet is being raised to 25 and each vehicle will achieve a distribution target of 2,000 tons.

It is further proposed to expand the scheme during the next Five Year Plan so as to gradually increase the target and see that all the fields in Delhi State are fully manured and thereby increased food production achieved.

APPENDIX XVI

WHAT IS FARMERS' FORUM?

It is non political, non sectarian association of the agricultural producers and all these who are interested in the promotion of their welfare.

It is being formed to create a common meeting ground where farmers, government officials, agricultural researchers, extension and marketing experts, members of legislatures, businessmen—in fact all men and women who are interested in the strong theming of the agricultural economy of the country, can meet together and pool their intelligence as also energy to study and solve the day to day problems of the agricultural producers and help them to raise the production of their land.

It is not tagged to any political dogmas but is expected to represent the voice of the cultivators of this country, Its set up is entirely non official and the membership is not restricted to any particular class of people. In fact anybody, who desires to contribute to the material well-being of the agricultural producers shall be welcomed into the portals of the Forum.

WHY FARMERS' FORUM?

The acute food shortage in the country, consequent to World War II, has imposed a sudden and heavy responsibility on the Indian Farmer, to play the major role in stepping up the food production. But he has so far been a forgotten soul and centuries of domination and hardship have shattered his life and have left him completely resourceless and ignorant. His beliefs are also thoroughly shaken and have made him develop a conservative attitude both in his thinking and in his deeds. A sort of mental inertia has taken possession of him and has made his life totally static. This cyst has to be broken if a spirit of dynamism is to be infused in him and he is to be equipped to perform the heavy task entrusted to him by the Nation. The immediate need of the hour, therefore, is to broaden his understanding and develop the faculty in him to realise his problems—both economic and cultural—and think and evolve solutions to overcome them.

The present is an opportune moment to initiate this change. The yoke of the feudal lordship of his land, which had been slowly eating the flesh out of him for centuries, has been lifted from his neck and he is feeling free and more secure in his land. More land reforms are being ushered which will confer more rights on him. The Veterinary and Agricultural Departments of the Governments have been energised to take a greater interest in his life. A Community Development Organisation and a National Extension Service have been created to train him and advise him on his day to day needs. All these are welcome changes and their activities will prove useful in ushering a change in his outlook. But the activities of these organisations alone would not be enough to broaden rural understanding and, if the rural people are expect to play a full part in the democratic processes of the country, some more efforts have to be put in and more guidance imparted to them so that the judgments emerging from them are sound. Such judgments could be solidly founded and a real confidence created in them only upon understanding and experience gained through discussion and action in their own communities which condition can be fulfilled only by the creation of a Farmers Organization—a *purely cultural and vocational association of their own*—which shall make them sit together and think and plan solutions of their difficulties and also impart to them a strong power of speech to voice their reactions and feelings when they so desire.

The Nation is spending a sum of Rs. 361 crores in its First Five Year Plan to improve the conditions of the villagers and as the Plan itself states "the principal responsibility for improving their condition must rest with the villagers themselves. Unless they feel that a programme is theirs and value it as a practical contribution to their own welfare, no substantial or lasting results will be gained. It is no use trying to force improvements down their throats. Similarly the programmes which depend largely on financial assistance from the Government without any element of self help on the part of the villagers are short lived. *The aim has to be to create in the rural population a desire for a higher standard of living—a will to live better*". And, in a more easy way and in much less time and expense, a Farmers' Forum can succeed in achieving the above goal and kindle a desire to live better in more than two hundred and fifty million people of this country and procure their active co-operation in all the schemes launched by the nation for ushering prosperity

in their own lives and also produce for the Nation—enormous quantities of foodgrains which shall not only be sufficient to feed its hungry mouths but can fetch for it millions of dollars and sterlings in markets overseas.

That is why the Farmers Forum has of itself emerged into the life of the Nation at this stage. It is a historic necessity—for no prosperity in the life of the rural people—and thereby the whole nation—can be ushered without the aid of such a vocational and cultural association of the farmers themselves.

Aims and Objects of Farmers' Forum

The aims and objects of the Forum as set forth in the Constitution are as follows:

1. To study the problems facing the agricultural producers in India.

2. To promote, advance and protect the social, economic and cultural interests of the agricultural producers in this country.

3. To assist in formulating and promoting national and international agricultural policies and to collaborate and co-operate with similar Organisations of Agricultural Producers in this country or abroad, for furtherance of the said objective.

4. To take such steps for the fulfilment of the above objects as may be necessary from time to time in particular collection and expenditure of funds; undertaking publicity and publications of all kinds; to hold meetings, conferences and seminars; to send representatives, delegations, deputations etc.

Broader Objectives of Farmers' Forum

Broadly the objectives of the Forum are as follows:

1. To initiate a process of study and collective thinking among the agricultural producers and all those who are interested in promoting their welfare.

2. To impart instructions to the farmers in scientific methods of agriculture and acquainting them with the results of modern researches in agricultural sciences.

3. To tender advice to the farmer in his vocational difficulties and help him procure his day to day needs.

4. To impart a consolidated voice to the agriculture of the Nation.

5. To watch all legislation and present briefs before all commissions where agricultural interests are at stake.

6. To watch price trends of agricultural commodity markets both at home and abroad and interpret statistic.

7. To advise Governments when contracts are being entered into for farm products, when trade agreements are under negotiation, when quotas on farm products are being set, when general production, marketing or export programmes of agricultural commodities are under consideration.

8. To recommend representatives to boards, commissions or enquiries where agriculture should be represented and,

9. To keep businessmen, the press, Governments and the people regularly informed on farm problems and farm policies.

Set Up of Farmers' Forum?

Farmers' Forum, India, is a federal organisation which shall affiliate.

- (a) Farmers Forum and other farmers organisation in the various states.
- (b) Other agricultural producers associations at the All India and States level.

Membership

It shall have the following four classes of members who will be enrolled by the States Forums on payment of the scheduled fees. Such members shall be generally confined to metropolitan, district and sub-divisional towns and shall constitute the Forums in these places. Efforts shall be made to bring in them people of all walks of life—who are interested in the welfare of the rural people. This is necessary to make available to the Forums the experience of a varied composition of people.

No regular membership fee is proposed to be fixed for enrolling members to constitute the forums in villages. The expenses in forming the primary Forums shall not be large and the same could be met from voluntary donations by the members. The habit of sitting together and think collectively has to be inculcated in the farmer and for this purpose it would be better that, in the initial

stage, he may only be asked to sign a form in which he would pledge to take part in the activities of the Forum and abide by its motto and decisions.

1. *Ordinary Members.*—Any agricultural producer or any other person interested in the furtherance of agriculture shall be enrolled as an Ordinary Member of the Forum on payment of an admission fee of Rs. 10 and an annual subscription of Rs. 5 only.

Life Members.—Persons paying a sum of Rs. 100 in one instalment along with the admission fee shall be enrolled as Life Members.

2. *Associate Members.*—Any industrial firm, manufacturing or dealing in agricultural commodities, shall be enrolled as an Associate or Life Associate Member on payment of the admission fee and an annual subscription of Rs. 25 and Rs. 250 respectively. Every Associate Member shall be authorised to nominate one representative to attend the meetings of the Forum.

3. *Honorary Members.*—Any person, who renders some valuable service to the Forum or whose association with this organization is calculated to help the cause of the farmers, may be admitted as an Honorary Member of the Forum for such period as may be specified by the Governing Body in his case.

4. *Patron Members.*—National leaders and other persons, organisations and firms, assisting the organisation financially, may be admitted as Patron Members of the Forum by the Governing Body.

Administration of Farmers' Forum?

THE GOVERNING BODY

The Forum has a Governing Body which has been constituted by the Union Minister of Agriculture, Dr. Panjabrao Deshmukh, who is the President of this Body and besides him, consists of 25 members including a Vice-president, a Secretary and a Treasurer. This is the supreme body of the Forum and has power to affiliate other organisations and take decisions on all matters connected with the Forum and also bring about any change in its Constitution. There is to be no appeal against its decision.

This body is authorised to constitute any other bodies—such as a smaller Executive Council which can meet occasionally and look to the day to day work of the Forum

and also various other sub-committees and panels to study particularly subjects.

This body has also full authority to raise and manage the funds of the Forum.

National Office

The National Office of the Forum shall be located at New Delhi.

Funds of Farmers' Forum

The funds of the Farmers' Forum shall be:

1. Affiliation fees paid by Farmers' Forums and Farmers Organisations in the States and at the All India level.
2. Donations.
3. Grants from Organisations and the Government.
4. Subscription paid by members.
5. Grants from the National Farmers' Welfare Fund.

The National Farmers' Welfare Fund

This Fund shall be created out of the collections from the voluntary donations received from farmers and others—a regular campaign for which shall be launched in all the States. These collections shall be made during 'Farmers Weeks' which shall be organised all over the Country year after year. The management of this Fund shall be vested in a Trust and grants will be made for farmers welfare projects out of the interest received from these investments.

Tools of Farmers' Forum

Journals and Printed Literature.

Radio broadcasts.

Periodicals group discussions: Forum meetings.

Conferences and Seminars.

Publicity.

Action on Forum decisions.

Motto of Farmers' Forum

Listen—Discuss—Act—Co-operate.

For thy good and good of the State

Organisation of Farmers' Forum in States

1. A Convener is being appointed in each State who will constitute a small Executive Committee to initiate the formation of the Forum in that State.

2. This Executive Committee shall appoint conveners for each district and these conveners and the members of the Executive Committee together will form the interim *State Krishak Council*.

3. When Forums have been formed in all the districts. this body shall be reconstituted to include the Presidents of all the District Forums and the heads of Agriculture, Veterinary, Animal Husbandry, Co-operative, Marketing, Community Projects and such other Departments of the State Government which may be working for the welfare of the rural people. To this list may also be added a representative of the All India Radio and one or two Rural Economists of repute residing in the State. The Executive Committee should approach the Minister of Agriculture of the State to agree to be the President of this body. For the day to day administration of the Forum, the President may appoint a Vice-president. The Committee shall also have a Secretary and a Treasurer who will be nominated by the President.

4. The State Krishak Council may then constitute the new Executive Committee to look after the day to day work of the Forum in the State, which can meet at regular intervals.

5. After Forums have been formed at the district level, they may be formed at the sub-divisional headquarters by the same process.

6. Forums may then be formed in villages—by collecting a small number of interested cultivators in the village or group of villages—if they are very near each other. This work may be entrusted, as far as possible, to young men—who are either residing in the villages or have any other vocational interest in the village or the group of villages

7. Both at the district and the sub-divisional level the conveners may constitute small Committees to initiate the work of the Forum in those areas. Later they can be reconstituted by taking in the Presidents and Secretaries of the sub-divisional or thanna committees as the case may be. The officials of the various Government Departments, included in the State Krishak Council, stationed in the district or the sub-division may be associated with the activities of the Forum in those areas and included in these Committees whenever necessary.

8. The Central Office of the State Forum shall be located in the Capital of the State—and of the district and sub-divisional Forums at the district and sub-divisional headquarters.

9. Finances of the State Forum shall be met from

- (a) the share from the district membership subscription.
- (b) the grants from organisations in the state including state government.
- (c) the grants from the central Forum, whenever and wherever possible.

Immediate Programme of the Farmers' Forum, India

- 1. Setting up machinery to form Farmers' Forum and calling a State Farmers Convention in all the States.
- 2. Starting the Farmers' Forum at Delhi.
- 3. Calling an All India Farmers Convention in Delhi and having a Seminar on Land Legislation.
- 4. Issue an appeal for Funds and Donations.
- 5. Beginning a system of periodical Broadcasts from the various stations of the All India Radio.
- 6. Starting a monthly magazine 'Farmers Forum' in English and, if possible, also in Hindi.

APPENDIX XVII

FARMERS' FORUM INDIA

Constitution and Rules

NAME

Article I

The name of this Organisation shall be "The Farmers' Forum India" hereinafter referred to as the "Forum" or "Krishak Samaj".

OBJECTS

Article II

The objects of the Forum shall be:—

1. To study the problems facing the agricultural producers in India.
2. To promote, advance and protect the social, economic and cultural interests of the agricultural producers in this country.
3. To assist in formulating and promoting national and international agricultural policies and to collaborate and co-operate with similar Organisations of Agricultural Producers in this country or abroad, for furtherance of the said objective.
4. To take such steps for the fulfilment of the above objects as may be necessary from time to time; in particular, collection and expenditure of funds; undertaking publicity and publications of all kinds; to hold meetings, conferences and seminars; to send representatives, delegations, deputations etc.

NON-POLITICAL STATUS

Article III

The Forum shall be a non-political, non-sectarian Association of the agricultural producers and all those who are interested in the promotion of their welfare and it shall be the duty of its Governing Body to preserve its independent and non-partisan status.

CENTRAL OFFICE

Article IV

The Central Office of the Forum shall be located at New Delhi.

AFFILIATION

Article V

The Farmers' Forum, India, shall affiliate the Farmers' Forum and similar Farmers Associations in the various States on such conditions as may be laid down by the Governing Body.

MEMBERSHIP

Article VI

There shall be four classes of members—

1. *Ordinary Members.*—Any agricultural producer or any other person interested in the furtherance of agriculture shall be enrolled as an Ordinary Member of the Forum on payment of an admission fee of Rs. 10 and an annual subscription of Rs. 5 only.

Life Members.—Persons paying a sum of Rs. 1,000 in one instalment along with the admission fee shall be enrolled as life Member.

2. *Associate Members.*—Any industrial firm, manufacturing or dealing in agricultural commodities, shall be enrolled as an Associate or Life Associate Member on payment of the admission fee and an annual subscription of Rs. 25 and Rs. 250 respectively. Every Associate Member shall be authorised to nominate one representative to attend the meetings of the Forum.

3. *Honorary Members.*—Any person who renders some valuable service to the Forum or whose association with this organisation is calculated to help the cause of the farmers, may be admitted as an Honorary Member of the Forum for such period as may be specified by the Governing Body in his case.

4. *Patron Members.*—National leaders and other persons, organisations and firms, assisting the organisation financially may be admitted as Patron Members of the Forum by the Governing Body.

YEAR OF MEMBERSHIP

Article VII

The year of Membership shall be the Calendar Year.

GOVERNING BODY AND FUNDS

Article VIII

(1) The Governing Body of the Forum shall be nominated by the President.

(2) Beside the President, it shall consist of twenty-five members including a Vice-President, a Secretary and a Treasurer.

(3) The Governing Body may appoint or constitute such other bodies, committees, pannels, etc. as may be considered necessary.

(4) The decision of the Governing Body in all the matters of the Forum shall be final.

(5) The quorum for a meeting of the Governing Body shall be ten.

(6) The funds of the Forum shall be credited in the name of the Forum in a Scheduled Bank and the account shall be operated with the signature of at least two members of the Governing Body from a list determined by the President.

MEETINGS

Article IX

1. The Forum shall meet periodically and discuss the subjects scheduled for the meeting.

2. The meeting in the month of January shall be the 'Annual Meeting' of the forum. This will pass the budget and determine the programme of the forum for the ensuing year.

CHANGES IN THE CONSTITUTION

Article X

The Governing Body may replace this brief constitution by a more elaborate one as and when it considers it necessary in the interest of the Organisation.

COMPULSORY PROVISIONS

Article XI

The compulsory provisions of the Registration of Societies Act shall be applicable to the Forum.

We the following office-bearers of the Forum hereby certify that the above is a true copy of the Constitution and Rules of the Farmers' Forum, India.

(1) President. (2) Vice President. (3) Secretary.

APPENDIX XVIII

EXTRACTS FROM AGRICULTURAL INFORMATION NEWSLETTER
ISSUED BY THE OFFICE OF AGRICULTURAL INFORMATION,
DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES,
MANILA, PHILLIPINES.

Secretary Araneta urges more Forest Cover

Actual forest cover in the country is far below the minimum requirement for purposes of utility and benefit, it was recently disclosed by Agriculture Secretary Salvador Araneta.

Secretary Araneta pointed out that in order to derive substantial benefits from the forest cover of the country, each province should hold at least the minimum percentage of forest area in relation to its over-all land area.

"In this manner", he said, "the forest will absorb excess rain water during the wet season, thus preventing floods and conserving water for use during the dry months". This, he declared, does not take into account other benefits such as the aesthetic value that a forest gives to the countryside and its service as a refuge for birds and other wild life.

* * * * *

Adopt measure to Conserve Forests

In line with the new forest conservation programme of Agriculture Secretary Salvador Araneta, a measure has been adopted to require public land applicants to plant trees on certain portions of the land covered by their applications. This was announced by the Department of Agriculture and Natural Resources.

The regulation provides that for every 10 hectares of land applied for, the hectare shall be planted to forest trees of economic value, such as fruit and medical trees. This requirement will be embodied as one of the conditions in the order of approval of homestead applications and in the order of award in cases of sales or lease applications.

It is believed that this measure will help prevent floods, soil erosion, and extreme climatic conditions, as well as improve the local scenery.

* * * * *

Meet on Forest Conservation

The National Committee on the First Philippine Forest Conservation Conference under the chairmanship of Agriculture Secretary Salvador Araneta met recently in a determined bid to curb wanton destruction of public forests.

Faced with the problem of denuded watersheds in extensive areas throughout the country, the members of the Committee unanimously voiced grave concern over the possibility of overdrawn dry months and violent floods due to deforestation.

* * * * *

Fish Production on Upgrade

There is now more fish production *per capita* among thousands of fishermen in Cagayan, according to the Director of Fisheries, Department of Agriculture and Natural Resources.

The district fishery officer of Cagayan reported that the unemployment problem in the coastal municipalities of the province has been partly solved by the improved fishery conditions. Municipal revenues have also increased.

EXTRACTS FROM AGRICULTURAL INFORMATION NEWSLETTER
DATED THE 27TH SEPTEMBER, 1954, ISSUED FORTNIGHTLY BY
THE OFFICE OF AGRICULTURAL INFORMATION, DEPARTMENT
OF AGRICULTURE AND NATURAL RESOURCES. MANILA,
PHILIPPINES.

Barrio Farmers' Week Committee Sets Plans

Plans for the forthcoming celebration of 'Barrio Farmers' Week' were mopped out during a recent meeting of the committee headed by Agriculture Under Secretary Jaime N. Ferrer.

The celebration which is scheduled for October 24 to 31, is an activity of the Department of Agriculture and Natural Resources dedicated solely to improving the lot of the Barrio farmer.

Under Secretary Ferrer has enjoined civic Organisation, such as PRUCIS (PHILLIPINE RURAL COMMUNITY IMPROVEMENT SOCIETY), NAMFREL, and PRRM, to take part and assist in the nation wide observance.

The activities designated for each day of the period are as follows: Sunday—Barrio betterment day; Monday—Homesite farm day; Tuesday—Soil and forest conservation day; Wednesday—Crop production day; Thursday—Livestock production day; Friday—Home industries day; Saturday—Fish production and conservation day; and Sunday—Rural youth day.

LAND APPLICANTS REQUIRED TO PLANT TREES

Agriculture Secretary Salvador Araneta announced that all Orders of Approval of homestead applications and each order of award of Sales and leases of public agricultural lands will require applicants to keep not less than 10 per cent of the land applied for planted to trees of economic value.

* * * * *

Secretary Araneta disclosed that this action was resolved for the following purposes: (1) conserve our forests; (2) mitigate the effect of floods; (3) prevent soil erosion; (4) temper extreme climatic conditions; (5) preserve aesthetic and unique sceneries; and (6) preserve grazing areas well as wildlife.

The directive, it was learned, will take effect immediately.

Lands Bureau Installs Time-Saver

A map reproduction machine which produces tracing cloth plants without error and considerably reduces the time consumed for processing surveys, has already been installed and is now in operation in the Bureau of Lands, Director Zoilo Castrillo of Lands announced.

This is part of the modern equipment received by the bureau as implantation of the modernisation and mechanisation project of that office with FOA-PHILCUSA financial and technical assistance.

This machine, it was explained, enables the lands bureau to make a 'linen reproducible' identical to a tracing cloth in about a minute, compared to hours and weeks consumed when doing the same thing by hand.

BARRIO COUNCILS OF FOOD OUTPUT

The various Barrio councils in the Bicol region have shown tremendous effort in improving farm production by increasing the number of vegetable gardens undertaken

by them as of the end of the last fiscal year, according to District Agriculturist Pacifico B. Marcelo.

About 171 Barrio councils have been organised throughout the Bicol area with Albay leading the other provinces.

These Barrio councils, Agriculturist Marcelo disclosed, have contributed much to the increased production of the year round vegetable home gardens that abound presently in the Bicol area.

The number of vegetable gardens undertaken by the different Barrio councils totals 2006 in six States. The population of these six States is:

Catandunes	1,12,121
Albay	3,94,694
Camarines Sur	5,53,691
Masbate	2,11,113
Sorsogon	29,138
Camarines Norte	1,03,702

APPENDIX XIX

•Lodging in sugarcane, as in cereal crops, is a source of serious economic loss. Its effect in the case of sugarcane is mostly to depress the juice quality and ultimately result in an actual loss of recoverable sugar. It has been found, that in lodged canes the sucrose figures dropped by 3 to 5% and purity values by 6 to 11%, as compared to erect canes. This harmful influence on sugar yield is due to the setting in of 'inversion' as a result of which sucrose (the form in which sugar is normally stored in cane) gets converted into its simpler forms—Glucose and Fructose. Owing to the same reason, the 'gur' made from juices of lodged canes, presents difficulties both during boiling and setting, thereby greatly affecting its market value. Further lodging results in a large percentage of bent and crooked canes, which considerably interfere with harvesting. This has now become a major problem in countries like U.S.A. where machanised agriculture has reached its peak and 'combine harvesting' is the order of the day. In view of its economic importance as an important factor affecting yield and quality of the crop, lodging has received attention and attempts have been made to combine lodging resistance with other desirable agronomic characters, in every breeding and seedling selection programme at this Institute. Thus every year a large number of varieties reputed for their good habit like Co. 331, Co. 453, Co. 508, Co. 678, Co. 745, Co. 779, etc. are extensively employed as parents for introducing this useful characteristic into the progeny.

Lodging in sugarcane is a complex phenomenon and differs in many respects from what is observed in the case of cereals. In cereals, it is a problem only at harvest and really constitutes mass falling over, whereas in sugarcane it is a continuous process. Here it may be defined as the phenomenon by which individual tillers in a clump go away from the vertical either at origin itself or at various periods during their growth, and is the result of the interaction of various internal factors. It is essential to distinguish this typical lodging from wholesale 'Falling-over', a condition wherein a full-grown crop, entire rows of cane are uprooted and laid flat, mainly through

mechanical impact, caused by adverse environmental factors like wind, rain and hail.

Sugarcane varieties differ considerably in their susceptibility to lodging and some obviously possess an inherent pre-disposition to this undesirable character. It is to this varietal aspect of the problem that attention has recently been bestowed at this Institute. For this a very large number of plant characters—morphological, anatomical and chemical—have been studied in order to assess their relationship to lodging resistance. The important indications obtained as a result of this study are briefly outlined below:

Among the numerous morphological characters studies, certain features of the underground branching have shown interesting relationship to lodging. The occurrence of tillers with a small diameter at origin and forming a diverging angle to the mother stalk, in combination with a sort-jointed underground portion, having reduced number of internodes would all appear to promote lodging. Higher percentage of caneformed tillers in the clump and higher ratios of the diameter and length of bottom internodes to those of the top internodes are seen to be associated with lodging resistance.

Certain anatomical characters like the higher concentration of vascular bundles towards the periphery and a narrow cortex at the growth ring region, have been observed to contribute to the stiffness of the stalk and hence negatively related to lodging. Among the chemical determinations made, high percentage of dry matter in the cane and also a high percentage of dry matter calculated per unit length of the cane bear a positive correlation to lodging resistance or erectness in a variety.

Thus it will be seen that the factors contributing to lodging in sugarcane seem to be several and inter-related. A detailed study of the varieties with the determination of the various simple, discernable plant characters (of the type enumerated above) at different stages during cane growth, it would be possible to assess their behaviour towards lodging and to isolate relatively resistance types for commercial cultivation.

APPENDIX XX

"TUNDU" DISEASE OF WHEAT

"Tundu" disease of wheat, also known as Yellow ear-rott of wheat or slime disease of wheat, is particularly severe in Delhi State and in certain parts of the Punjab, Rajasthan and Uttar Pradesh. In Delhi State alone the damage can be safely put at about 1 to 2 per cent on an average, but losses exceeding 50 per cent have been observed in individual fields. As the affected ears fail to form any grain, its appearance even in a mild form is responsible for considerable loss.

The principal characteristics of this disease are curling of the emerging leaves and the development of a bright yellow slime or gum on the inflorescence and parts of the stem, forming adherent sticky layers between the glumes and between the stem and the sheath. This slime is composed of bacterial mass and the outer exposed portions become dried up, hard and brittle, and at the same time take on a deeper yellow tone. Another common feature is the distortion of the stem immediately below the head due to the interference of the sticky bacterial masses with the growth and expansion of the plant.

The cause of the disease is a bacterium (*Corynebacterium tritici*). These germs, are, however, unable to attack wheat plants directly, but require the presence of eelworms known as nematodes (*Anquina tritici*). This peculiar worm causes another dreadful disease of wheat which is known as Mamni Dhanak, Gegla or Earcockle. In the seedling stage, the nematodes cause wringing, twisting and various other distortions of the leaves, and sometimes enlargement of the stem. Infected plants are usually shorter and thicker than normal ones. Seedlings severely infected with nematodes often wilt and die. In the mature heads of wheat, the disease is characterised by the presence of hard dark galls in place of normal kernels. The galls are somewhat thicker than wheat kernels and cause the glumes to spread apart as in a bunt infected, head.

These galls or so-called cockles, because they resemble the seed of European cockle weed, contain both the nematodes and bacterium. When they fall to the ground or are sown with the wheat seed, the worms escape into the surrounding moist soil and, on coming in contact with the seedling shoots, penetrate between the leaf sheaths near the apical or growing points of the shoots. They also carry the bacterium which causes the disease. It is interesting to note that, where the disease occurs, all the affected plants do not show bacterial symptoms, but instead sufficient cockles are produced to begin the cycle over again in the next growing season.

It is clear from this that the control of earcockle will ensure a simultaneous check of tundu disease. A farmer can get rid of this menace within a few years by sowing clean wheat seed from which galls have been removed. This can be easily achieved by floating off the galls in water before sowing. The galls are lighter than the kernels and, therefore, do not sink to the bottom. Some of them may stick to the seed, but majority of them can easily be removed if the water is continuously stirred for about ten minutes. This process is very simple and economical. The only apparatus required is an earthenware or a metallic vessel, large enough to handle about 25 seers of seed at a time, with a spout at the top to decant off water along with the galls into another vessel. The treatment should be done just before the sowing is to be done and seed sown after drying. This will not in any way adversely affect the germination of seed. One precaution, is, however, very essential. The galls so collected should not be thrown near the cultivated areas, but should be burnt immediately to avoid their being a source of infection in the subsequent season.

APPENDIX XXI

Area and Production of Rice in India

1. Area.

(Thousand acres).

State	1949-50	1950-51	1951-52	1952-53	1953-54
Andhra	4,567	4,303	4,241	4,547	4,500
Assam	4,062	4,043	4,182	4,420	4,180
Bihar	13,855	14,490	13,391	13,062	13,016
Bombay	3,165	3,001	2,995	3,144	3,197
Madhya Pradesh	8,839	8,996	9,016	8,992	9,065
Madras	6,012	5,561	5,780	5,681	6,378
Orissa	9,554	9,572	9,441	9,587	9,786
Punjab	469	564	526	556	579
Uttar Pradesh	9,047	9,519	8,627	8,848	9,003
West Bengal	9,767	9,802	9,488	10,207	10,547
Hyderabad	1,393	1,287	1,563	1,277	1,743
Jammu & Kashmir	390	394	394	497	497
Madhya Bharat	335	322	241	212	200
Mysore	796	779	781	771	857
P.E.P.S.U.	39	38	46	51	58
Rajasthan	101	174	133	176	169
Saurashtra	57	89	79	72	79
Travancore-Cochin	1,059	1,059	800	800	800
Ajmer	(a)	(a)	(a)	(a)	(a)
Bhopal	47	45	38	29	32
Coorg	89	90	89	89	94
Delhi	(a)	1	1	(a)	1
Himachal Pradesh	107	107	109	110	112
Kutch . . . . .	..	..	..	..	..
Manipur	181	205	201	177	176
Tripura	382	391	384	403	391
Vindhya Pradesh	1,097	1,298	1,161	1,175	1,180
Andaman & Nicobar Islands	4	5	6	6	6
Total	75,414	76,135	73,713	74,209	76,646

2. Production.

(Thousand tons of cleaned rice).

State	1949-50	1950-51	1951-52	1952-53	1953-54
Andhra	1,789	1,859	1,807	1,747	2,135
Assam	1,737	1,413	1,510	1,654	1,633
Bihar	3,631	2,554	2,873	3,440	4,202
Bombay	1,080	1,004	771	960	1,301
Madhya Pradesh	2,569	1,506	2,633	2,613	2,663
Madras	2,252	2,194	2,302	2,161	2,975
Orissa	2,048	2,006	2,132	2,227	2,340
Punjab	143	163	171	219	234
Uttar Pradesh	2,507	1,967	1,525	1,851	2,246
West Bengal	3,682	3,911	3,479	3,950	5,224
Hyderabad	348	331	436	326	581
Jammu & Kashmir	130	152	156	205	205
Madhya Bharat	46	32	14	39	48
Mysore	248	266	367	335	436
P.E.P.S.U.	11	11	12	11	17
Rajasthan	14	57	10	45	81
Saurashtra	15	25	18	21	31
Travancore-Cochin	398	398	273	236	273
Ajmer	(b)	(b)	(b)	(b)	(b)
Bhopal	4	4	3	5	5
Coorg	35	43	41	41	51
Delhi	(b)	(b)	(b)	(b)	(b)
Himachal Pradesh	31	24	21	22	23
Kutch . . . . .	..	..	..	..	..
Manipur	98	87	67	71	66
Tripura	196	135	136	137	136
Vindhya Pradesh	157	107	207	177	171
Andaman & Nicobar Islands	1	2	1	2	2
Total	23,170	20,251	20,964	22,495	27,079

Figures for Himachal Pradesh and Tripura up to 1949-50 are in terms of Paddy (unhusked rice). For subsequent years *viz.* 1950-51, 1951-52, 1952-53 and 1953-54 they are in terms of rice (husked rice).

APPENDIX XXII

P. THIMMA REDDY,

MINISTER for Local Admn. & Agri.

Kurnool, 17th October, 1954.

Dear Shri Deshmukh,

I am glad that under your able guidance, agriculture is progressing well in our country. But I feel that some more steps should be taken for giving due publicity to all improved methods of agriculture. In olden days, there used to be a few 'lantern equipments with slides' in the department for screening improved agricultural practices advocated and that kind of publicity was given up gradually. Now-a-days, cinemas have a telling effect in impressing the illiterate population and I feel that every State should give much publicity in the rural areas by screening films taken by the Department. There will of course be certain initial expenditure in the purchase of equipment like cameras, projectors, collapsible screens, electricity generators, station wagons for moving the equipment etc. Though my state is in infant stage and is saddled with heavy deficit budget, I would like to push through this publicity scheme with your kind help and co-operation by giving some assistance through the Indian Council of Agricultural Research or the Agriculture Ministry in cash and kind by bearing certain percentage of the scheme and by supplying cameras, films, etc. from the Department of Information and Publicity. Copies of the films which we take will be sent to the Government of India also so that they can be used in the documentary films etc. by the Publicity Department and by other states also, if necessary. I would like to send an official communication in the matter only after knowing your views in the matter. I, therefore, request you to kindly let me know to what extent I can put this scheme in execution with the assistance of the Government of India.

With kind regards,

Yours sincerely,

Sd./- P. THIMMA REDDY.

Dr. P. S. Deshmukh,
Union Minister for Agriculture,
New Delhi.

No. F.1809/54-M-A.

December 2, 1954.

Dear Shri Thimma Reddy,

I am sorry that your letter of 17th October, 1954, regarding agricultural publicity has remained unanswered so far. I agree with you that unless we mobilise all modern media, agricultural information could not be adequately conveyed to the farmer. In this respect, films and cinemas will be of great help.

2. However, I think we shall have to place more emphasis on the production and supply of agricultural information literature to the farm public, in a readily acceptable form. Towards this end, the Indian Council of Agricultural Research has been producing a number of agricultural information pamphlets and leaflets which are circulated to the different States, with the object of those publications being translated into local languages for mass distribution by the State Governments. The State Governments could take advantage of this in their agricultural publicity work.

3. The I.C.A.R. has supplied free of charge certain multilith printing equipment to certain States Departments of Agriculture, including the Government of Andhra, for producing agricultural information literature cheaply. The I.C.A.R. have also trained the personnel from the different States for operating such machines.

4. The I.C.A.R. is also issuing a Monthly Journal entitled 'Dhar-ti-ka-lal' which conveys to the farmer in a simple language, using the minimum of words, improved farm techniques, so that even those farmers with a limited vocabulary could follow such information and ideas conveyed in that paper. I understand that in the community project areas, film projectors have been supplied, and if more projectors are required, perhaps there would not be much difficulty in obtaining them through some of the Foreign Assistance programmes, provided there is evidence to show that the existing equipment is being properly used and is found to be inadequate.

5. My own feeling is that agricultural information could receive proper impetus only if some nucleus staff is set up in each State Department of Agriculture which could deal exclusively with agricultural information and dissemination of such information to the farm public through all available information media. The Ministry of Food and Agriculture are considering ways and means of how this arrangement in the States could be brought about, so that we could establish adequate Centre-State co-operation in the dissemination of agricultural information. We are also setting up a Central Film Library, with the object of collecting all agricultural films of importance to the Indian agriculturists. Once this Central film library is set up, it should be possible for us to loan useful films to the States for their own use in the rural areas.

6. You will thus see that we are already thinking in terms of what you have suggested in your letter. It would be appropriate therefore for the Government of Andhra to initiate any proposal on the above lines. Such proposals would receive proper attention at this end, on merits. Ordinarily, we would be able to procure only essential equipment, and any staff expenditure may have to be borne by the State Governments themselves.

7. I hope you would be able to inform the appropriate officials of the Andhra Government of the suggestions contained in this letter.

Yours

Sd./- P. S. DESHMUKH.

Shri P. Thimma Reddy,
Ex-Minister for Agri.,
Andhra, Kurnool.

APPENDIX XXIII

- (A) EXTRACT FROM LETTER No. 1528/X/FT/INI/54, DATED 31ST AUGUST, 1954, FROM THE DEPUTY SECRETARY TO GOVERNMENT OF MADHYA BHARAT, FOR FOREST AND TRIBAL WELFARE DEPARTMENT, TO THE PRIVATE SECRETARY TO THE MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA, NEW DELHI.
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With reference to the D.O. (Circular) letter dated 2nd July 1954, from the Hon'ble Minister for Agriculture, Government of India, addressed to the Agriculture Ministers of all States, I am directed to say that the Government of Madhya Bharat have already sanctioned a scheme for allotment of forest lands on agriculture-cum-silviculture system.

GOVERNMENT OF MADHYA BHARAT

FOREST AND TRIBAL WELFARE DEPARTMENT, INDORE

No. 1104/X-F/40-54

Dated the 17th June, 1954

NOTIFICATION

In exercise of the Powers conferred by section 76 of the Madhya Bharat Forest Act, Samvat 2007 (No. 73 of 1950), the Madhya Bharat Government hereby makes the following rules namely:—

1. (i) These rules may be called the Madhya Bharat Taungya Cultivation Rules, 1954.

(ii) These rules apply to the reserved forests under administration of the Forest Department.

2. In these rules unless the context otherwise requires:—

- (i) The Divisional Forest Officer means an officer incharge of the territorial Forest Division and includes any Forest Officer subordinate to him who has been directed to do any duties under these rules.

(ii) Taungya means the raising of crop of trees of forest species in conjunction with agriculture in a given plot of land.

(iii) Plot means an area of about 15 acres land leased to a cultivator for taungya plantation.

3. The Divisional Forest officer, with the previous approval of the Conservator of Forests will decide and declare before the month of April, the blanks or understocked (of density approximately below 0.5) pieces of land in the reserved forests, exceeding 300 acres, hereafter named 'taungya villages' which he wants to afforest by direct sowing and plantings by 'taungya' system, during course of the period fixed for restocking the area with species of forest trees selected for the locality.

4. The period for restocking the area with trees of forest species is fixed at 6 years, in the ordinary course, which may be extended by two years, at the most, by the Chief Conservator of Forests, in special cases, when he will be satisfied that the lessee of the land has behaved properly and that the unsuccessful growth of the trees to the desired number and quality was not due to the fault of the lessee of the plot. The period of each year of lease will be counted as from 1st June to 31st May in the next calendar year.

5. The Divisional Forest Officer will internally demarcate by a clear-cut line 30' wide and standard size pillars of boulders, the boundary of the taungya village lands selected by him for re-afforestation under this system. He will divide, on the site, the village land into plots of approximately 15 acres each, by natural boundaries, as far as available, otherwise by pillars of boulders 3' high with a wooden post 5' high fixed inside. He will get surveyed and plotted the village and the plots inside it on a scale of 16 inches to a mile.

6. The Range Forest Officer will mark by coal-tar and serially number and list the deformed and useless trees standing on each plot which he wants to be felled and be cleared out by the lessee.

7. After this is done, the Divisional Forest Officer will invite applications by wide publicity till a definite date, from the local adult landless Advisasis, Harijans and members of other backward classes and as well as of ex-criminal-tribes, duly equipped with all the necessary means of cultivating land (a pair of bullocks and necessary

agricultural implements), who would wish to be leased a plot of one plough and (about 15 acres).

8. The Divisional Forest Officer will allot the plots of land in the taungya villages in consultation with another officer or non-official who may be nominated by the Government or the Chief Conservator of Forests for the purpose.

9. The applications from the intending lessees will be received on a prescribed printed form supplied to them free of charge by the Divisional Forest officer embodying the terms of the lease of a plot of land acceptable to the applicants.

10. The plots of land will be allotted on a temporary lease for a period of six years to the men belonging in order to the Adivasis Harijans and other backward classes, as well as ex criminal tribes.

11. On allotment of the plot of land on lease by the Divisional Forest Officer, on behalf of the Rajpramukh of the State, the allottee of the plot shall enter into a legal agreement with the Divisional Forest Officer, on the prescribed form (Annexure A).

12. The Divisional Forest Officer will provide, as far as possible, the facility of drinking water within the village, and timber of miscellaneous species of trees from within the village land or naturally dead and dry available in any other area nearby to the lessees for making their huts, free of royalty. The Divisional Forest Officer may permit any lessee to dig a well or wells for irrigation purposes or for supplying drinking water at any place in his plot.

13. One pair of bullocks, one buffalo and cows will be allowed grazing free of fees in the reserved forest to each lessee of the taungya plot.

14. The lessees and other villages shall not keep goats and sheep within the village as they destroy young plants.

15. The lessee shall be given possession of the plot in its present condition on the site by the Range or Sub-range Forest Officer. He will pass a formal, signed, dated and witnessed receipt therefor.

16. The lessee will be required to pay to the lessor (Divisional Forest Officer) rent for the plot of land (about 15 acres) at the nominal rate of Rs. 15 by way of premium for the lease of the plot for the whole period of the lease i.e. 6 years.

17. The lessee, in the first year of his lease, must fell all deformed and useless trees in his plot marked by the Range Forest Officer for felling. He will clear and remove all stumps from at least 3 acres area in his plot before 30th June and may sow kharif and rabi crops on his plot.

18. During and after the 2nd year of the lease, the lessee shall cultivate the whole plot, except on the land which will be progressively afforested at the rate of 3 acres a year, by direct sowings and plantings. He may however, sow crops on the space between the seedling lines and detailed in the following rules.

19. The lessee of each plot, when and so required by the lessor at any time during which the land may be prepared for sowing of seeds of trees or planting of transplants, shall lay out and dig lines (hereafter called seedling lines) one foot wide, one foot deep, with a space of not more than 15 feet between such seedling lines, and shall sow such seeds of trees or put in such plants as the Divisional Forest Officer may direct or shall permit officers or servants of the Forest Department to do so. The lessee shall if so required by the Divisional Forest Officer, collect seeds of trees in sufficient quantity for such sowings and shall sow seeds or plant seedling lines in such manner as the Divisional Forest Officer may direct.

20. A Forest subordinate will be detailed by the Divisional Forest Officer to show how the work of preparing, sowing or planting the seedling lines should be done and his directions shall be followed by the lessee in every respect.

21. The seedling lines must be laid out in such direction or directions and at such place or places as the Divisional Forest Officer may prescribe and the lessee must take the greatest care in digging or cultivating the plot of land after sowing of seed or planting of seedling lines so that no damage shall be done to anything sown or planted in the seedling lines.

22. The lessee shall keep all seedling lines weeded absolutely clean and such weedings shall be done with a khurpi or by hand so that injury shall not be done to seed or seedlings. The lessee must weed the seedling lines every time that he weeds crop grown by the lessee on the spaces between the seedling lines and must also weed seedling lines at such other times as the Divisional Forest Officer may direct.

23. The lessee shall, if so required by the Divisional Forest Officer, weed the seedling lines during the times of ploughing, sowing or reaping the ground between the seedling lines.

24. If the Divisional Forest Officer is satisfied that any seedling lines have been badly weeded or that the seedlings in them have been damaged he shall be entitled to confiscate to the use of the lessor the whole or any part of the standing or succeeding agricultural crops grown on the side plot.

25. If the lessee deserts or gives up the cultivation or fails to dig the seedling lines in his plot during the second year of the said term of lease he shall pay to the lessor as compensation rupees five per acre land not cultivated and rupees fifteen per acre not dug and sown with forest seeds. If he will do so during the third year of the said term he shall pay rupees seven per acre land not cultivated and Rs. 20 per acre not dug and sown with forest seeds. If he will repeat the same in the fourth year, he will forfeit his claim on the plot and will be ousted by the Divisional Forest Officer. The Divisional Forest Officer will re-allot the plot to any other person for remaining term of the lease.

26. The lessee and other members of his own family brought by him on the said plot shall strictly and scrupulously observe all the laws, rules and regulations of the Forest Department. The lessee shall pay any amount of penalty due from any members of his family if the penalty will not be paid by the person accused.

27. The lessee shall do free of charge the clearing of the said plot and all preparation and weeding of the seedling lines and collection of seed.

28. The lessor may terminate the lease at any time for any branch by the lessee of any of the conditions of the lease or for unsatisfactory or careless work done by the lessee or by any person for whose conduct and work the lessee is responsible under the terms of the lease. The decision of the Divisional Forest Officer as to whether the lessee has forfeited this right under the lease for any of the reasons aforesaid shall be final and binding on the lessee. If the lease is terminated for any of the reasons mentioned in this rule the lessee shall not be entitled to any compensation whatsoever and any crops sown or planted on the paid plot shall become the property of the lessor.

29. At the end of the said term of the lease the lessee shall peaceably surrender possession of the said plot to the lessor and shall not be entitled to any compensation whatsoever for improvements made by him thereon or for anything whatsoever done or made by him on the said plot.

30. All money payable to the lessor under these rules may if not paid on demand will be recovered as an arrear of land revenue.

31. The lessee shall be subject to the observance of the Rules in force for the time being for the administration of the Forest Villages.

By Order,
MOOLCHAND,
Secretary to Government,
Forest & Tribal Welfare Dept., Indore.

THE MADHYA BHARAT FOREST DEPARTMENT (Annexure A)

AGREEMENT DEED FOR TAUNGYA CULTIVATION UNDER THE RULES UNDER SECTION 76 (d) OF THE MADHYA BHARAT FOREST ACT, FOR AFFORESTATION BY 'TAUNGYA' SYSTEM.

This deed of lease between the Divisional Forest Officer on behalf of the Raj Pramukh, Madhya Bharat, of the one part (hereafter called the lessor) and.....
s/o..... caste age
years, resident of village..... Tahsil.....
District..... (hereinafter called lessee) of the
other part witnesses that in consideration of the payment of lease money to be made by the lessee hereinafter provided and by the covenants by the lessee hereinafter contained, the lessor hereby leases to the lessee for the purpose of clearing, cultivating and planting, the same, all those portions of forest land hereinafter called the taungya plot stated to be situated in..... Forest Division,
..... Range and described in the schedule hereto attached and demarcated on the ground to hold the same to the lessee for the term of..... years from the..... day of 19...
(if the lessee so long lives but not otherwise) upon the terms and subject to the condition hereinafter set forth and each of the party hereby covenants with the other that he will perform and observe each and all of such terms and

conditions so far as they are to be performed and observed by him, namely:—

1. On or before the.....day of.....19...
(the lessee shall pay to the lessor rent for the plot of land (about 15 acres) at the rate of Rs. 15 (fifteen) only by way of premium for the lease of the plot for the whole period of the lease i.e. 6 years.

2. The lessor will provide, as far as possible, to the lessee the facility of drinking water within the taungya village and timber of miscellaneous species of trees from within the village lands or naturally dead and dry available in any other area nearby to the lessee for making his hut, free of royalty. The lessor may permit the lessee to dig a well or wells for irrigation purposes or for supplying drinking water at any place in his plot.

3. The lessee will be allowed to graze free of royalty, one pair of his own bullocks, one buffalo and cows, in the reserved forests.

4. The lessee, his dependants and servants shall not keep goats and sheep within the taungya village as they destroy young plants.

5. The lessee shall be given possession of the plot in the present condition on the site. He will pass a formal signed, dated and witnessed receipt therefor.

6. The lessee in the first year of his lease must fell all deformed and useless trees in his plot marked by the Range Forest Officer for felling. He will clear and remove stumps from at least 3 acres area in his plot before 30th June, and may sow kharif and rabi crops on his plot.

7. During and after the 2nd year of the lease, the whole plot, except on the land which will be progressively afforested at the rate of three acres a year by direct sowings and plantings. He may, however, sow crops on the space between the seedling lines as detailed in the following paragraphs.

8. The lessee, when and so required by the lessor at any time during which the land may be prepared for sowing of the seeds of the trees or planting of transplants, shall lay out and dig lines (hereinafter called seedling lines) one foot wide, one foot deep and with a space of not more than 15 feet between such seedling lines, and shall sow such seeds of trees or put in such plants as the Divisional Forest Officer may direct or shall permit officers or servants of

the Forest Department to do so. The lessee, shall if so required by the Divisional Forest Officer or any other forest officer, collect seeds of trees in sufficient quantity for such sowings and shall sow seeds or plant seedling lines in such manner as the Divisional Forest Office may direct.

9. A Forest subordinate will be detailed by the Divisional Forest Officer to show how the work of preparing, sowing or planting the seedling lines should be done and his directions shall be followed by the lessee in every respect.

10. The lessee shall lay out the seedling lines in such direction or directions and at such place or places as the Divisional Forest Officer may prescribe and the lessee must take the greatest care in digging or cultivating the plot of land after sowing of seed or planting of seedling lines so that no damage shall be done to anything sown or planted in the seedling lines

11. The lessee shall keep all the seedling lines weeded absolutely clean and such weedings shall be done with a khurpi or by hand so that injury shall not be done to seed or seedlings. The lessee must weed the seedling lines every time that he weeds crop grown by the lessee on the spaces between the seedling lines and must also weed seedling lines at such other times as the Divisional Forest Officer may direct.

12. The lessee shall, if so required by the Divisional Forest Officer or his subordinate officer weed the seedling lines during the times of ploughing, sowing or reaping the ground between the seedling lines.

13. If the Divisional Forest Officer is satisfied that any seedling lines have been badly weeded or that the seedlings in them have been damaged, he shall be entitled to confiscate to the use of the lessor the whole or any part of the standing or the succeeding agricultural crops grown on the said plot.

14. If the lessee deserts or gives up the cultivation or fails to dig the seedling lines in his plot during the 2nd year of the said term of the lease he shall pay to the lessor as compensation rupees five per acre of land not cultivated and rupees fifteen per acre not dug and sown with forest seeds. If he will do so during the third year of the said term he will pay Rs. seven per acre of land not cultivated and rupees twenty per acre of land not dug and sown with forest seeds. If he will repeat the same in the fourth year of the lease he will forfeit his claim on the plot and will

be ousted by the Divisional Forest Officer. The Divisional Forest Officer will reallocate the plot to any other person for remaining term of the lease.

15. The lessee and other members of his own family brought by him on the said plot shall strictly and scrupulously observe all the laws, rules and regulations of the Forest Department. The lessee shall pay any amount of penalty due from any members of his family, if the penalty will not be paid by the person accused.

16. The lessee shall do free of charge of clearing of the said plot and all preparation and weeding of the seedling lines and collection of seed.

17. The lessor may terminate this lease at any time for any breach by the lessee of any of the conditions of this lease or for unsatisfactory or careless work done by the lessee or by any person for whose conduct and work the lessee is responsible under the terms of this lease. The decision of the Divisional Forest Officer as to whether the lessee has forfeited his right under this lease for any of the reasons aforesaid shall be final and binding on the lessee. If this lease is terminated for any of the reasons mentioned in this clause the lessee shall not be entitled to any compensation whatsoever and any crops sown or planted on the said plot shall become the property of the lessor

18. At the end of said term of the lease the lessee shall peacefully surrender possession of the said plot to the lessor and shall not be entitled to any compensation whatsoever for improvements made by him thereon or for anything whatsoever done or made by him on the said plot.

19. All money payable to the lessor under this deed, may if not paid on demand will be recovered as an arrear of land revenue.

20. The lessee shall be subject to the Rules in force for the time being for the administration of the Forest villages.

In the witness whereof the parties have hereunto set their hands the.....day of.....

.....19... signed on behalf of Raj Pramukh,

Madhya Bharat, by the Divisional Forest Officer.....

signed by the lessee.....s/o.....

in presence of (1).....(2).....

In presence of (1) Lessor

(2) Lessee.....

Ⓐ COPY OF LETTER No. 33682-P/54, DATED THE 2ND NOVEMBER, 1954, FROM SHRI P. THIMMA REDDY, MINISTER FOR AGRICULTURE, ANDHRA, KURNOOL, TO THE UNION MINISTER FOR AGRICULTURE, NEW DELHI.

SUBJECT: *Agriculture—Note on important developments achieved.*

Your D.O. No. TMA-25/53-Cir., dated 2nd October, 1953.

I enclose a note on certain items relating to Agriculture, which I hope will be of interest to other States. I shall be glad to let you have further particulars if required in regard to any of the items mentioned in the note.

Note on important items of Development achieved in Agriculture in Andhra State.

I. Phenomenal yield in Turmeric:—

In Revendrapadu village of Duggirala firka, Tenali taluk, there was a phenomenal yield of 16 candies (cured) rhizomes of Turmeric. The normal yield is only 5 candies of 500 lbs. each per acre. The high yield was due to:—

(a) Growing in well drained soil under lift irrigation by electric power.

(b) Good cultivation as detailed below:—

May to July—Ploughing 6 times with country plough.

August to October—Weeding five times.

(c) Heavy Manuring:—The details of manurial treatments are given below:—

Time	Kind of Manure	Dose per acre
April to May	Penning cattle	15 cattle per day, for 1 month.
	Penning sheep	2000 sheep.
	Canal silt	150 cartloads.
	Cattle manure	15 cartloads.
September to October	Groundnut cake	4 bags—(160 lbs. each).
	Castor cake	15 bags (Do.)
	Paddy mixture	4 bags. (100 do.)
	Ammonium sulphate	224 lbs.

II. Trench Planting of Sugarcane:—

Early shoot borer is one of the serious pests affecting sugarcane. In years of severe drought the infestation is at its maximum. Counts made in Trench planted crop *versus* normally planted (shallow furrows) crop gave results as shown below at the Government Farms and in ryots' fields.

Locality where observations were made	Percentage of sheets attacked by early shoots borer in	
	Trench planted crop.	Normally planted crop
1. Sugarcane Research Station Anakapalli •		
Co. 419	16.1	28.74
2. Liasion Farm Samalkot Co. 419	4.63	20.32
Co. 527	19.11	40.46
3. Ryots Fields (Average of 6 places)		
Co. 419	14.8	24.6
Co. 527	9.9	19.0

The result show that infestation is lesser in deep trench planting than in shallow planting.

III. Tubewells with filter points:—

The tubewells with filter points have proved a great blessing to the agriculturists in this State. These tubewells enable ryots to raise early paddy nurseries, thereby ensuring a 10 per cent. extra yield at harvest. The wells also serve as a standby when the supplies in the irrigation channels are inadequate.

(C) EXTRACT FROM D.O. No. 6863-AGRI.54/7644, DATED THE 1ST DECEMBER 1954, FROM THE DEVELOPMENT MINISTER, PUNJAB TO THE UNION MINISTER FOR AGRICULTURE.

Kindly refer to my D.O. letter No. 6017-Agr-54/2201, dated the 20th October, 1954.

2. R-231 new improved strain of Desi Cotton.

At present emphasis is being laid on the breeding of superior types of American Cotton. A limited work is being done on the improvement of Desi Cotton. An improved variety, namely, 231-Rosea developed by selection from the local mixture has been extensively tested

against M60, A2, the old standard variety of Desi Cotton. The superiority of 231 Rosea over the latter variety has been established beyond all doubt as shown in the data given below:—

Particulars	231R	M60A2	Remarks.
1. Yield per acre (mds)	13.21	12.06	Average of 61 trials.
2. Ginning percentage .	42.8	38.4	Average of 7 years.
3. Mean fibre length (inches)	0.64	0.61	
4. Mean fibre weight .	0.324	0.304	
5. H. S. W. Counts .	6	6	
6. Cash return per acre (Rs.).	461	422	Average of 6 years.

It will be seen that 231-R gives 1.15 maunds of kapas per acre (95 per cent.) and 4.4 higher ginning out turn than M60A2. It is desirable that this variety may be propagated for cultivation in the districts of Gurdaspur, Hoshiarpur and parts of Ambala where the chances of introduction of American Type appear to be remote owing to the presence of serious pests like leaf roller and angular leaf spot disease. The results of the improved types are very encouraging and it is proposed to place it on the approved list of improved seeds.

3. Maize Soyabean intercropping.

Maize is an important crop in Kangra district. Unfortunately it has low protein content and, therefore, does not provide a balanced diet. In order to improve its dietetic value proteins have to be supplemented from other sources. With this object in view efforts were made to grow Soyabean—a leguminous crop as inter crop in the maize. This experiment was held out at the old seed breeding substation, Nagrota Bhagwan, where maize alone was compared against maize plus soyabean as intercrop in between the rows of maize. The experiment was continued for the last four years. It has given more consistent and interesting results as given below:—

Year	Yield of maize crop sown alone Mds/Acre.	Yield of maize and soyabean sown together mds/acres	Total increased production from Mixture mds/acres.
		Maize	Soyaben
1950	16.00	17.00	11.00
1951	12.29	16.15	15.00
1952	14.43	16.13	13.75
1953	13.12	14.25	17.70
Average	13.96	15.88	12.86
			Plus 12.0
			18.86
			15.45
			12.83
			14.78

The above results show that the yield of maize grown with soyabean has been invariably higher than maize sown alone with an extra production of soyabean from the same area. This leads one to the conclusion that the extra production by inter cropping of soyabean in between the rows of maize is the outcome of two additional advantages viz.—

- (i) Soyabean grown in between rows of maize keeps down the weeds which otherwise deprive the soil of plant food and;
- (ii) replenishes the soil fertility by fixing atmospheric nitrogen through its nodules on account of its legume nature.

In view of the facts mentioned above growing of soyabean in between the rows of maize can safely be recommended in the whole areas where soyabean has done well. This will not only increase the production but will also enrich the diet of the people. Punjab Soyabean No. 1 appears to be suitable variety for growing as inter crop in maize.

3. Experiments on birth weight.

At the Government Livestock Farm, Hissar, the average birth weight of 623 calves born was found 51.9 pounds, for 312 males calves the average was 53.1 pounds and for 311 females 50.7 pounds. The smallest calf weighed 30 pounds while the largest weighed 70 pounds at birth. Average maximum birth weight (53.8 lbs.) of calves was obtained from dams of 3—5 years age and thereafter a steady decrease was observed with the increase in the age of the dam. There was, however, a slight increase in the birth weight of calves from the dams of 11—13 years old which may be due to small size of sample obtained for this age group. The fact that the calves produced by 3 to 5 years old cows were the largest, would indicate that the dams tended to reach maturity at about 4 years of age.

(D) COPY OF MONTHLY LETTER FOR NOVEMBER 1954, D.O. No. 133540B.111/54-8, DATED 2ND DECEMBER, 1954 FROM SHRI M. BHAKTAVATSALAM, MINISTER FOR AGRICULTURE, MADRAS, TO THE UNION MINISTER FOR AGRICULTURE.

I am sorry that this letter is late by three or four days.

2. Your last letter No. XIV deals extensively with rice which is of the utmost importance to us in this State. The

deliberations of the International Rice Commission are bound to be of great use. The Commission's last meeting held in October in Japan which was attended by you must have naturally afforded a good opportunity to learn of the advances made in rice research and technology in that country, which is one of the oldest rice growing countries. I look forward to receiving the literature about rice in Japan which you have promised to send. Rice research has made great advances in Japan and there is no doubt that we will have a great deal to learn from the work done by workers in that country. Two years ago, at our suggestion, the Government of India sent a team of rice specialists to Japan and among that team was our Paddy Specialist, who has now gone over to Andhra. The report submitted by him was very useful. It is needless to say that both our country and Japan may stand to gain by occasional meetings of the research workers of the two countries in this field. You might remember that a scheme for hybridisation of Indica and Japonica strains is now being conducted at the Central Rice Research Station, Cuttack, under the auspices of the Food and Agricultural organisation. In fact we wanted to do the work ourselves in a limited way but as the Food and Agricultural Organisation had started the scheme at Cuttack, we gave it up. Our experience in this country is common with Japan in respect of matters relating to rice, viz., artificial manuring and cultural method of thin and line sowing, now popularly called the Japanese method. You might know that Madras is the only State in India which took to manuring by artificial fertilizers for over two decades, thanks to the efforts made by companies like the Imperial Chemical Industries and the careful research done by our Agriculture department to recommend correct dosage, and the supplementing artificials by farmyard green and manures to retain the humus in the soil and to maintain correct soil texture. There has never been any prejudice in this State at any rate against artificial manures guided largely by the experience in Japan, and we have also copied the experience of China in the usefulness of night soil manuring in the form of compost. Our offtake of Ammonium sulphate has reached a limit of one lakh tons and our potential requirements are even more. Our complaint recently has been the shortage of supplies owing to the reduction in the output of Sindhri. The adoption of the Japanese method of cultivation as modified to suit our requirements has by all accounts yielded very satisfactory results. The account that your delegation gave about the efficacy of this method as adopted here and the films that you showed in Tokyo must have

impressed the other delegates and, as you have suggested, it is likely to be adopted sooner or later by all other countries in South East Asia with beneficial results. Even with the adoption of these improved techniques, the rice yields in India have not yet recorded a universal increase although in crop competitions over limited areas surprisingly good results have been recorded. This only indicates that we have still got a long way to cover before we can come abreast with Japan. We have another good feature of Japan to follow, namely, the use of small scale farm machinery, which has not as yet received prominent attention here. I have read somewhere that by the use of these improved machinery alone, the rice yield in Japan has increased by about 30 per cent. during the last half a century. The interesting information you have given about rice production in Italy, Spain, etc. in Europe besides that in Korea and Formosa is also found very useful.

3. I agree with you that for a rice eating country like India it should be worthwhile having a permanent exhibition of rice and rice growing not only in Delhi but in a few more places in the country similar to the one arranged in Tokyo in connection with the session of the Rice Commission. I would go one step further and say that there should be a separate Indian Central Rice Committee to look after all work like this relating to this Important crop. As I have already mentioned in one of my previous letters, we tried to raise this question at the Governing body meetings of the Indian Council of Agricultural Research on one or two former occasions but for one reason or other, this proposition did not gain acceptance. It is rather odd that there should be no separate commodity Committee for rice, while for less important commodities like Arecanut there are separate committees. I do wish that this question will be reconsidered at the next meeting of the Indian Council of Agricultural Research. I would also invite your attention to the fact that the work of the Central Rice Research Committee, Cuttack, should be given wide publicity and that its reports should be printed and published promptly in order that it may play its due part in the development of rice. The celebrations of the Silver Jubilee of the Indian Council of Agricultural Research cannot be marked by a more significant event than the creation of a rice committee which may act as a safeguard in the scientific sphere against the repetition of the travails of the rice shortage in this vast country which only three or four years ago made us wait on the compassion of the other nations of the world.

4. I have dealt at length on this question of rice because we in this State are under no illusions about our rice requirements and the limit our potential production measured with the reference to the increase in population. At present there is no doubt an All India over production and surplus but it is too soon to crow over it or be complacent unless this trend is stabilised over at least five years. That rice production in India is a gamble in rains is a dictum which will be true for all times and we cannot afford to lose sight of possible adverse seasonal factors up-setting our calculations. In fact we are currently a little concerned about the performance of the North East Monsoon. As I already reported in my last letter the Monsoon started punctually and brought about wide spread rains during the third week of October. By the end of the month the depression in the Bay retreated resulting in the decrease of rainfall. The weather during the first fortnight of November was mainly dry except for a few showers which occurred locally in a few places in the southern districts. Some widespread but moderate rains received during the third week of November improved the position in regard to water supply for crops. A second spell of rains which we usually have before Karthigai is still holding off and unless it is in evidence the monsoon cannot be declared to be good. Already the dry spell has resulted in the development of pest attacks in various parts of the State and Chingleput where it is worst has had to be declared pest affected for the purpose of sale of pesticides at concessional prices. The prices of foodgrains fortunately remain steady except for insignificant fluctuations here and there. There was a slight fall in the price index of commercial products but not very pronounced. The general fall in prices which is some times feared is now held in check by the uncertainty of the monsoon. In dealing with economic questions like this there is need for the Government of India to consider them not only on an all India basis but also on a regional basis. It is to be hoped that the Agro-Economic Research Units set up by the Central Government will study this live problem instead of taking up post mortem surveys. The improvements suggested by the Price Enquiry Committee in its recent report in the matter of price reporting should be of great help to these research units in apprising and forecasting to the Central and State Governments the economic significance of these trends.

5. You have also given in your letter information about the development of agricultural co-operation in Japan. One

significant factor that is noticed is that the co-operatives which were mainly established originally for the purpose of relieving agricultural debt in that country have slowly taken the role of developing agriculture and marketing. This is an orientation which is very badly needed in our country also. The land Mortgage banks should be gradually developed into organisations for land development and should function as vital sources of credit to agriculturists for constructive work. It is to be hoped that the survey of the Reserve Bank of India which has not yet been published and the ensuing conference of the Indian Society of Agricultural Economics will give due attention to this matter. This question of co-operative credit is also dealt with by Mr. Chester Devi in his report on Rural credit in India published recently which seems to deserve study and follow up action.

6. Our chronic deficiency of financial resources can, to some extent, be remedied by the development of our various natural resources, such as the utilisation of the forest waste to which you have made pointed reference in your letter. The minor forest produces and the forest waste, if put economic exploitation, would doubtless add to the revenues derived from our forests. These questions which are usually left to be dealt with at higher levels have also to be given constant attention by lower officers and they should be allowed freedom and initiative to suggest measures for forest development and exploitation. An innovation in the forest administration of this state was made when the forest officers of the Salem circle held a conference of their own at Salem for four days in the third week of October. The Conference, which was presided over by the Chief conservator of Forests, discussed topics such as village forests areas suitable for artificial regeneration, methods of regeneration suited for the plains, methods of regeneration for hilly areas, kumri cultivation schemes, choice of the species of trees, protection of village forests, method of dealing with forest offences, etc. It is hoped that by such conferences the implementation of the forest policy and programme will be more vigorously carried on with a common understanding and co-operative endeavour on the part of the departmental officers. The delegation of the world Forestry congress will be visiting this State next week. A programme of visits to important forest areas in this State has been arranged for the delegates. It is good that these visits have been arranged before the conference instead of after the conference, as is usually the case, so that the delegates may have useful

suggestions to make in their deliberations at the conference. We have since sanctioned the revival of the post of Forest Utilisation Officer, which was abolished following the partition of the State, with a view to enlarging the scope, functions and the usefulness of the forest organisation and the development of its activities. We have also made some other slight adjustments in the set up of the Forest Department to make its work more effective.

7. The Soil Conservation experts of the Government of India visited the Nilgiris recently and selected an area of about 200 acres near the Ree's Corner, Ootacamund for opening a Soil Conservation research and demonstration centre. The question of transferring or leasing out this area to the Government of India is now under examination. I must in this connection draw attention to the fact that out of the seven regions provisionally selected for starting regional research and demonstration centres by the Central Soil Conservation Board at its meeting held in Poona in August 1954 there is none for the southern region. The Board seems to have held the view that the regional centres could not be established state-wise on scientific and technical grounds. It cannot be stated that there are no such grounds for starting a centre in this region. The Government of India will be addressed shortly to start a centre at Coimbatore.

8. We have reorganised the field set-up of the Agriculture Department so that there may be no duplication of staff in the National Extension scheme and community Project areas. We have withdrawn the surplus staff and spread them over the entire State so that each demonstrator may have one fieldman at headquarters to assist him and one depot to serve the ryots. This no doubt involves the opening of additional depots but it will be of great service to the ryots as a demonstrator without a depot will not be of much use. During the month I convened a small conference of the departmental officers, which was also attended by the Regional Director of Meteorology, to discuss the question of artificial rain making. As the possibilities of inducing rainclouds to precipitate over limited areas during the periods of dry weather in order to revive the crops which will otherwise wither, are immense, a small scheme based on some work that has already been done by one of our officers has been ordered to be formulated and submitted to Government for approval.

9. The Gosamvardhan week was observed in a number of places and I myself opened the cattle shows at Dharapuram and one or two other places. The response was very satisfactory and the one day cattle shows were largely attended. A cattle show at the veterinary hospital in Saidapet at the fringe of Madras City drew unusually large entries and attendance. Opportunity was taken on that occasion to explain in some detail the work done by the Animal Husbandry Department in Madras City and the adjoining district of Chingleput.

10. The Food and Agricultural organisation trainees in tropical dairying at the Aarey Colony made an one day visit to this State. They were taken round and shown the dry cow salvage farm, the cooperative milk supply union centres and the Government Milk Factory.

11. We have sanctioned the formation of an association in North Arcot to help people who keep pigs in order to develop the bristle industry which promises to be very profitable.

12. The Madras Veterinary College which is considered to be one of the best in the East will be celebrating its golden jubilee in January, 1955. The Prime Minister has kindly consented to inaugurate the celebrations. I shall be writing to you separately requesting your presence on that occasion when you will be in Madras in connection with the Congress session. I presided over the veterinary college hostel day and impressed on the students that the service which the veterinarians can do is no less important than that of medical men for the welfare of the country. A controversy has been raised in the press over the need for the evacuation of cattle from Madras city both from the point of view of health and sanitation and also from that of organising a satisfactory system of milk distribution for the city. This is a very difficult question which is engaging our attention in connection with the report of a Committee set up by us with Dr. A. Lakshmanaswamy Mudaliar as chairman to go into the question of the future of the government Milk Factory which manufactures reconstituted milk from milk powder to supplement the fresh milk supplies in the city. The corporation of Madras has also sent up a small scheme for financial assistance for organising a milk colony on the outskirts of the city. If an opportunity offers, I shall discuss this question with you when I come to Delhi in connection with the meeting of the Indian Council of Agricultural Research.

13. In my last letter I made mention of the trouble of sea erosion and referred to a case North of the Madras harbour. Another case has occurred in Manpad in the Tirunelveli District in the far south where a number of fishermen were affected. The District Collector has been asked to render urgent relief and to send up further proposals to the Government.

14. From one or two questions in the Lok Sabha, which have been passed on to us for supply of information, it is noted that some interest is evinced in pearl fisheries. For some years now no pearl fishery worth the name has been conducted off the Tuticorin coast and we have reason to doubt that the oyster banks are disturbed. We have sanctioned a small staff consisting of fisheries inspectors and police constables to keep patrol during the next fishing season. The paddy *cum* fish culture which I referred to in my last letter reveals immense possibilities. A vast stretch of 37 acres in a water-logged area in the Tanjore District where deep water paddy is cultivated has been selected for experiment. This fish culture will also be demonstrated at the ensuing congress exhibition in Madras city. We are making elaborate arrangements for all departments of the Government to participate in this exhibition on big scale. The Tilapia fish culture which is an exotic is also being tried in the Tanjore District with promising results. An unusual appearance of a very large number of elvers (young ones of eels) at Srivaikuntam Anicut in Tirunelveli district was also noticed. These elvers were collected and experiments are being conducted in the Fresh Water Biological Station to study the possibility of taking up eel culture in ponds.

15. The National Extension Service and Community project work is going on satisfactorily. The Government have sanctioned a scheme for the establishment of two home economics departments at the extension training centres in this state under the auspices of the Indian Council of Agricultural Research. For the cultural development of these areas a scheme for the coordination of library service with other services in the Community Project and community development blocks has also been sanctioned. According to this scheme the local Library authorities will cater to the needs of the project areas by opening branch libraries and by taking other steps necessary to provide effective library service in these

areas. The development of handicrafts is also being given special attention. The need for setting up a wool processing centre for the development of the drugget industry, which is an important rural industry in the Madras and Mysore States, was felt as long ago as 1950. It was decided in consultation with the Mysore and the Central Governments that a wool processing centre of 30,000 sq. yds. capacity should be set up jointly by the Madras and Mysore Governments at an estimated cost of Rs. 11.3 lakhs. The Central and Mysore Governments will each contribute one third of the cost. The processing centre will be under the overall control of a joint board of Management consisting of the representatives of the Madras and Mysore Governments. The centre will be located at Vinnamangalam in north Arcot district. The district Harijan Welfare Officers in the State have been instructed to work in close cooperation with the Block Development Officers and the project Executive Officers. In future the development Commissioner in this State will also coordinate the work of the Harijan Welfare Department with the works of the other departments in the Community Project and national extension service areas.

16. I am thankful to you for the appreciative reference you have made to the usefulness of the monthly letters from this State.

With kind regards,

Yours sincerely,
Sd/- BHAKTAVATSALAM.

APPENDIX XXIV

Mounting of Crop Campaigns

Here is a note given to me by one of our campaign officers when I met him in the Nasik district (Bombay State) the other day. Some at least of his suggestions deserve serious consideration. I would also like to perfect our arrangements for these campaigns. I would like them to be more vigorously worked and would also like to have almost day to day contact with it. For the time being, Shri Roy has been bearing considerable brunt of it although the Production Commissioner was put in charge. This is one activity of the Ministry which has been beneficial beyond expectation, and, I therefore want to get out of it the utmost possible results. I would like, therefore, fresh and better arrangements to be considered and perfected so that we should be increasingly capable of dynamic action. The suggestions made by Shri K. R. Patil, should be examined and, if necessary a meeting of all concerned called in my room or the Committee Room in a couple of weeks time. We may also invite the campaign officers to this meeting together with the Agricultural Commissioner, the publicity Section, Dr. Pal, Shri Nehemiah and others. The subjects I would like to discuss are:—

- (a) Assessment of the work of the Campaign Officers,
- (b) the present arrangements for sponsoring of the campaigns,
- (c) the scope and nature of future campaigns and the needs of publicity and other material for them,
- (d) integration in these campaigns of such activities as crop competitions etc. and inclusion of other crops, where feasible,
- (e) review of the work of the body appointed in consequence of the Lucknow Conference on Agricultural Information,
- (f) popularization of improved implements and their manufacture,

- (g) availability, prices and methods of distribution of fertilizers in 1955,
- (h) the need of publicity and especially projectors for showing films on Agriculture,
- (i) the need of making new films and the subjects on which we need them, etc.,

Sd/- P. S. DESHMUKH,
10-11-1954.

Japanese Method of Paddy Cultivation

NOTES ON THE SUGGESTIONS MADE FOR THE PROMOTION OF THE CAMPAIGN AND INTENSIFICATION OF THE METHOD.

Suggestion No. 1.

Appointment of the Honorary Propaganda Workers.

The social workers and the progressive cultivators who had adopted the Japanese method in cultivation of their own paddy crop during the last two years, who wield influence over their brother cultivators, who may not be more educated may not have ability to speak in large meetings but those who may be of moderate knowledge, who can speak in the language of the cultivators and are from amongst them, should be selected as honorary propaganda workers.

Such propaganda worker, should accompany, the Village level workers or the Agricultural Assistant or Sub-Inspector to the village wherein the latter officer should hold the meeting of the cultivators. The propaganda worker should tell the audience his experience in following the Japanese method of paddy cultivation on his own farm and exhort the assembled cultivators to adopt this method.

Thus such Honorary propaganda workers per taluka or Tehsil having an area of 10,000 acres or above under the paddy crop, may be selected.

Each worker may be paid an honorarium of Rs. 100 per month to cover his travelling expenses etc. His appointment should be for six months from February to July. He should be supplied with a set of two pictorial posters worth Rs. 20 for exhibiting at the time of the meeting.

*Suggestion No. 2.**Selection of Village leaders.*

In many villages we notice some young cultivators who are progressive in outlook and cooperate with the extension workers in adopting the agricultural improvements and practices on their farms. They also take active part in village improvement work without any compensation. The village leader from amongst such cultivators should be selected in suitable villages, each having at least an area of 200 acres or more under the paddy crop.

Each Village leader should be young, energetic and interested in the spread of the Japanese method of paddy cultivation in his village. He should be trained in the Japanese method of paddy cultivation at the nearest training Centre or Government Farm where such Centre is opened.

This village leader should form an association consisting of about three or four active youths from amongst his friends in the village; they should be known as workers.

The Village leader should train the workers in this method. They should visit the house or the farm of each paddy grower in the village, encourage and induce the cultivator to cultivate the paddy crop by this method.

The selection of the Village leaders should be made by the District Collector who should give them cloth badges marked as "Village Leader Japanese Method of Paddy Cultivation".

Each Village leader should be supplied with a set of three hand hoes, each set containing the Karjat hand hoe, the Karjat rotary hand hoe and the Japanese hand hoe. These hoes would be used under the guidance of the Leader and his workers by the villagers for interculturing the paddy crop.

*Suggestion No. 3.**Arrange talks of the cultivators under Rural Broadcasting Programmes of the All India Radio.*

One or more cultivators from each taluka should be called to give the talk on his experience under each technique under the Japanese method adopted by him while raising his paddy crop. He should also explain some of the striking observations made by him during the crop growth.

Such speeches should be specially arranged thrice a week at the nearest Broadcasting station; this work should be commenced from December onwards and continued till the month of July.

There may not be extra expenditure on this item as these programmes can be adjusted by the All India Radio by curtailing expenditure on other items of entertainment.

Suggestion No. 4.

Taking written pledges from the paddy growers, willing to adopt the Japanese method.

The cultivators generally are very honest, and stick up to their statements if given by them in writing, in presence of the 'Panchas'. The extension worker, whenever, holds the propaganda meeting in the village for explaining to the cultivators on Japanese method, he should take in writing on a sheet of paper statement of the cultivators and their signatures to the effect that they would adopt the method in cultivating their paddy crop.

Suggestion No. 5.

Layout of at least one demonstration plot in each village.

The paddy growers who saw the demonstrations on which paddy crop was grown by Japanese method, were quite convinced about this beneficial method. Such cultivators have followed this method on their Farm by bringing more area under these methods.

Such demonstration plots, however, are few. Thus the number of demonstration plots must be increased in a number of villages. It is suggested that one demonstration plot should be located in each village in paddy area.

The owner of the demonstration plot should be willing worker, progressive in outlook, showing thorough interest in the Japanese' method.

The extension worker who lays out the plot should see that each technique under the Japanese method is followed on this plot at right time.

*Suggestion No. 6.**Distribution of Tagai loan to paddy growers.*

Tagai loan may be sanctioned by the Revenue Authorities from February onwards. This will enable the cultivator to utilise the amount of loan for purchase of fertilizers much earlier the monsoon sets in.

Usually these loans are sanctioned late in the month of May or June. The cultivators who obtain the loan many times avoid to purchase the fertilizers in these months, especially those cultivators who reside in the remotest part of the Taluka.

*Suggestion No. 7.**Reduction in the existing price of the fertilizers.*

The trend of prices of the agricultural commodities, particularly the cereals is downward at present. In view of this situation the paddy growers desire that the prices of Ammonium Sulphate and Super phosphate should be 33 per cent. below the existing prices.

The paddy growers are convinced of the fact that the heavy doses of the fertilizers given to the crop under this method bring the bumper harvest; such cultivators and also those who are interested in adopting this method on their farm on large area, however, do not go in for purchase of these fertilizers willingly. It is therefore suggested to bring down the existing price of each of these fertilizers to the extent proposed above.

*Suggestion No. 8.**Showing cinema films to the village folks.*

It is experienced that the villagers take keen interest in the entertainment of the advisory nature provided through the district publicity and propaganda vans. It is suggested that the District Publicity Officer should show the cinema films on the Japanese method of paddy cultivation in as many villages as possible in each paddy growing Taluka. This work should be mainly concentrated in the months of March, April and May.

Suggestion No. 9.

Appointment of Special Officer in charge Japanese method of paddy cultivation in each State.

It is observed that in absence of an independent officer for this work in such State, the work, which forms as an additional work to the other officer, does not receive special attention. Layout of the demonstration plots, training the extension workers, advising the cultivators on adoption of this method, distribution of the fertilizers right in time, assessing the progress of work from time to time,—all these items of work can be conveniently supervised and done by the Special Officer. This appointment of a Special Officer may also help in intensification of this method in the States on large area.

It is therefore suggested that in each State, Government may appoint such officer under the Director of Agriculture of the State where no such Officer is appointed at present.

Sd/- P. R. PATIL,

Regional Campaign Officer,

Japanese Method of Paddy Cultivation,

Poona-1.

4th November, 1954.

CAMP MALEGAON,



Dr. Panjabrao Deshmukh
Union Minister of Agriculture's

CIRCULAR LETTERS

Nos. XVI to XVII

Part / V

**MINISTRY OF FOOD & AGRICULTURE
GOVERNMENT OF INDIA**



Dr. Panjabrao Deshmukh
Union Minister of Agriculture's

CIRCULAR LETTERS

Nos. XVI to XVII

Part V

MINISTRY OF FOOD & AGRICULTURE
GOVERNMENT OF INDIA

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MINISTRY OF FOOD & AGRICULTURE,
JAISALMER HOUSE,
New Delhi, January 7, 1955.

DR. PANJABRAO DESHMUKH,
Minister for Agriculture,
Government of India.

MINISTER FOR AGRICULTURE'S CIRCULAR LETTER
NO. XVI.

Dear Friend,

As you are probably aware I am getting these letters printed in a book form so as to serve as a book of reference and also with a view that it should be made available to larger number of people than I had contemplated in the beginning. May I also suggest that you may refer them as quickly as possible to your officers any points in the letters, which you think worthy of further consideration? I have been attempting to send copies to your Heads of Departments, but I do not know how soon they get it. There is no doubt that almost every one of them have found these letters of some interest and value. But somehow the two way traffic, which I was anxious to establish, has not yet come into being with any consistency or continuity. Shri Bhaktavasalam of Madras and Sardar Partap Singh Kairon of Punjab have, as is apparent from the contents of letters, taken a great deal of personal interest in the matter. In spite of uneasy and somewhat uncertain political situation in the State, various Ministers in Travancore-Cochin have been dealing with the suggestions in the letters according as time permitted them to do so. But in case of most other States, this is yet to begin with any regularity.

2. As you might have observed, I have on occasions personally obtained from the States information on points, which I considered of importance, in order that I may circulate it to others. When, for instance, I saw a press report of a remarkable increase in cotton production in Pepsu, I asked the Minister concerned to give me more details. Similarly, When I saw a report of a Conference of Foresters in U.P., I asked the Chief Conservator of Forests of the State to send me the minutes. There must, I am sure, be many similar instances of ladable activities,

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which you and your Government have initiated and undertaken. If it would be possible to give even a brief account every month of any of such things to me, the two way traffic, which I had contemplated, would begin to flow adding considerably to the utility of these letters. I, therefore, request you to see that the various points in these letters are dealt with quickly by your Secretary or the Heads of the Departments and these views and comments forwarded to me after you have had a look at them. It would, of course, be still better if all your other colleagues who are concerned with the subjects would do the same.

3. I had, I believe, made this suggestion once before, but it might have been passed over without special notice. It is also likely that this has happened because you did not think that anything worth communicating had taken place. May I, in this context, say that many of our friends are in the habit of under-rating what they do in the course of their duties? I do not wish that we should manify our achievements or take to blowing our own trumpets. But even if there is some element of this in a matter which is likely to be of some use to other people engaged in the same task, I think you should not hesitate at least to tell me what has been done. In very many cases I want to derive more strength and support in what I undertake to do. Of course, I am also equally prepared to desist from doing a thing or modify it according to views expressed by my colleagues in case there is need to do so. Ordinarily, such a situation is unlikely to arise because there is no insistence on my part that a certain thing must be done and done only in any particular way. These letters do place on my mind at least some amount of burden and subject me to a certain degree of strain to maintain the system. But I still believe they serve some useful purpose and for that reason it is worth being continued. I would, therefore, earnestly request you to let me have your views regularly on any points which you select from my letters together with communicating to me a short account of what your State is particularly engaged in with respect not only to Agriculture, but Animal Husbandry, Co-operation, Forests, Fisheries etc. I have expressed myself at some length on this point, because I am anxious that these letters should not assume a routine character but should serve the definite purpose of exchange of views, information and knowledge.

4. Secondly, it should not, I think, take any one very long to pick out the more important points in my letters

and to deal with them because in each letter, I do not think, there are too many of them in spite of the fact that the letters look rather bulky. I do not mind if the points in the various speeches of mine are not examined but the main points in the body of the letter should not go unnoticed because I make these suggestions with the intention of sharing my ideas with you, and if I fail to secure the advantage of your advice and comments, much of the purpose of my writing gets lost. I have written all this only to draw your personal attention and to have the advantage of your personal as well as departmental examination of the main points in the letters.

5. In this context you will probably be interested to go through a letter dated the 6th December 1954 written by a Swiss veteran Dr. F. T. Wahlen, who is the Director of the Agriculture Division of the F.A.O. at Rome:

"I still remember hearing for the first time of your circular letters when we were discussing plans for the possible collaboration of industry in agricultural development in Rome. I was very much interested in that idea because I felt that here you had found a means of keeping your State Ministers and other co-operators informed and interested in your plans.

I am, therefore, most grateful to you for having sent me the two volumes of your printed circular letters. I have read these with a great deal of interest and have found information on many points which have not been clear to me. I am particularly pleased too that you have devoted so much space to the F.A.O. Conference in Rome and to the meeting on Co-operatives in Ceylon. This, indeed, is the best type of selective publicity that could be made for our joint endeavours.

I am sure that Dr. Cardon would wish me to thank you also for the two volumes you sent him. Possibly he has been able to do so verbally during his visit in New Delhi. I am looking forward to reading his report on the Indian stage of his trip, which, I am sure, will be of absorbing interest for him."

6. In view of the fact that the above letter makes a reference to Dr. Cardon, I think you will be interested to go through a few extracts from the minutes of a meeting held in the Ministry with the Director General of F.A.O., Dr.

Cardon, the representatives and the officers of the Ministry of Food & Agriculture, the Planning Commission and the Community Projects Administration. This brief review covered the following points:

- (1) import of foodgrains,
- (2) sugar,
- (3) control of insects, pests and diseases,
- (4) marketing,
- (5) price support for cereal,
- (6) oilseeds,
- (7) oil cakes,
- (8) community projects and National Extension Service blocks,
- (9) agrarian reforms,
- (10) co-operative farming,
- (11) nutrition,
- (12) general education of the masses, and
- (13) statistics.

7. On a request made by the Chairman to throw some light on the expression 'Selective Expansion', Dr. Cardon, Director-General, F.A.O., opened the discussion by saying that in the light of certain surpluses occurring in some of the member countries of the F.A.O., the F.A.O. Conference held in 1953 recommended that member countries would be well advised to place emphasis on 'Selective Production' of agricultural commodities. Accordingly, a team of F.A.O. Experts were touring different countries to ascertain the production plans of member Governments, with a view to preparing a review of national plans to be placed before the next Conference of the F.A.O.

8. Mr. Barter of the F.A.O. further explained that in spite of surpluses occurring in some countries, the F.A.O. Conference laid emphasis on continued expansion of production on a selective basis in view of the steady increase in population and the need for raising nutritional standards by increasing consumption. 'Selective Expansion' only meant that in future care should be taken to see what kind of food should be grown in large quantities and where such crops should be grown. He observed that the adaptation of agricultural policies to the changing needs of a country's economy is the concern of individual Governments. However, an indication of the broad policies of

each Government would benefit the neighbouring countries, so that they could get together and discuss at regional levels, in the light of the information furnished, plans for any adjustment in their programmes of production. What the F.A.O. wanted was a broad indication of the strategy of India's future agricultural policy and how it fitted into the economy of the country in the background of having already achieved near-self-sufficiency in the production of cereals.

9. The representative of the Planning Commission said that our thinking in regard to the second Five Year Plan was as yet only at the initial stage and while nothing concrete could be said felt that while the amount of money likely to be made available for further agricultural development would be greater, it was possible that agriculture might not get as large a share of whatever funds available in the second Five Year Plan as it did in the first Five Year Plan.

10. The Inspector General of Forests expressed surprise at the omission of all references to Forestry in the agenda drawn up by the F.A.O. team. Dr. Cardon assured him that Forestry and fisheries find definitely a place in their study of this question of 'Selective Expansion'. F.A.O. had two separate organizations functioning with regard to Forestry and Fisheries—viz., Working Party on Forest products and the Indo-Pacific Fisheries Council, and they would go into more detailed probing.

11. Two events of more than ordinary importance took place during the month of December. The first was the 4th World Forestry Congress and the second was the Silver Jubilee of the Indian Council of Agricultural Research. As you might have already been aware, the 4th World Forestry Congress met for the first time outside Europe where all its first three sessions were held. Although it was supposed to meet every five years, there have been fairly long gaps in the holding of the various sessions. The first session was held at Rome in 1926, but ten years elapsed before the second was held at Budapest. The third again took 13 years before it could be held at Helsinki in 1949. The present and the 4th World Forestry Congress session was, therefore, the first to be held within the prescribed period. Although this may have been initiated 28 years ago when the F.A.O. or the U.N.O. was unknown, I am happy to find that the F.A.O. has now come to take a very direct part not only in the holding

but the work and proceedings of this Congress. It is probably this one factor which has led to the holding of this session within the prescribed period.

12. There could be no two opinions that while an unusually large number of countries sat round a table for the first time in the history of the world, and all of them contributed their utmost to the success of the Congress, it was the F.A.O., and its officers who bore the brunt of its organization and contributed immensely to such a big success. I tried to give to this Congress my utmost possible personal attention, and it is a happy thought to realize that this has all turned out to be well worth doing. Shri M. D. Chaturvedi was put in charge of the Congress as its Secretary-General and was given an extension for the purpose. Most of the credit goes to him and his men.

13. On the occasion of this world event of considerable scientific and practical importance to the world in general and to India in particular, we took the opportunity of bringing the facts and importance of forests and forestry before the public in several ways. One of them was a series of broadcasts from All India Radio to which I have had the honour of contributing a talk. This was put on the air on 2nd December 1954. The text of that talk is appended herewith as Appendix I. Similar talks were organized by the B.B.C. London also. Similarly, on the 11th December, special supplements were issued by such prominent dailies as "The Statesman", "The Hindu, Madras" and the "Pioneer, Lucknow". "The Times of India" and "The Amrit Bazar Patrika" had a series of articles covering the Congress. I contributed an article, the text of which is herewith appended as Appendix II.

14. As you all know, the Congress was inaugurated by the President of India, Dr. Rajendra Prasad on Saturday the 11th December 1954. The Governor of Uttar Pradesh, Shri K. M. Munshi first welcomed the guests as the Chairman of the Reception Committee on behalf of the host State of U.P., and I welcomed the delegates on behalf of the Government of India and asked the President to inaugurate the Congress. The speeches made on this occasion form Appendices III, IV, and V.

15. At the plenary session I was elected Honorary President of the Congress and Shri C. R. Ranganathan, Inspector General of Forests, Government of India was elected to preside over the session. In recognition of the services

of Shri Chaturvedi, the Congress elected him as an Honorary President also. Dr. D. A. MacDonald (Canada) and Dr. U. N. Sukachev (U.S.S.R.) were elected co-Presidents and Dr. E. Saari (Finland) was elected co-President. There were 4 Sectional Committees and one drafting Committee with 5 Ad Hoc Committees formed. The Congress was attended by 370 delegates from 40 countries and 5 International Organizations and was the most representative Congress both in respect of the number of delegates and of the number of countries they represented. There were altogether 8 excursions arranged throughout India by the various State Governments. Local excursions in the Siwaliks were also organized. In one of the excursions a tiger came out of a drive specially organized for the delegates. Different delegations took advantage of the various arrangements. Mr. Marcel Leloup of the F.A.O. read out his report on the progress made since the 3rd World Forestry Congress held at Helsinki in Finland in 1949, a copy of which is attached as Appendix VI.

16. The recommendations of the Congress are grouped together in 4 Sections under the following heads:

- (1) protective role of forests,
- (2) productive functions of the forests,
- (3) utilization, and
- (4) practical forestry.

Besides detailed recommendations on subjects falling under these sectional headings, the recommendations of the Congress are also grouped under the following headings:

- (1) Principles and Procedure of the Congress,
- (2) Bibliography.
- (3) Education, and
- (4) Classification of types.

These recommendations were submitted to the various Committees appointed to deal with the above subjects.

17. The summary report of the session which was approved by the plenary session makes a very interesting reading but it would be too much to include the whole of it even by way of a summary in this letter. None-the-less I think extracts bearing on the following sub-heads would be of interest and considerable practical value to all concerned. I will certainly send you copies of the summary, if and when, I get hold of its printed copies. I think we can, however, derive considerable satisfaction from the

fact that the Forest Policy which we had decided upon was by itself so comprehensive that many of the recommendations of the Congress are on very similar lines. The following recommendations and observations by the Delegates to the Congress are, in my opinion, highly instructive and, therefore, I enclose them herewith as Appendix VII.

18. The whole of the Section 5, which bears on 'Tropical Forestry' is divided into two parts—methods for facilitating regeneration and increasing production and desert control and arid zone forestry. Appendix VIII contains the recommendations of the Congress on this Section.

19. Apart from the broadcast, I am happy to say that most of the State Governments took considerable trouble on presenting in a summary way a brief account of the forests and forestry in their own States. The Forest Research Institute and Colleges were described in a newly prepared hand-book and the Institute also produced a list of publications of the Forest Research Institute and Colleges published upto 31st May 1954. The Directorate of Economics and Statistics of the Ministry of Food & Agriculture also produced a hand-book on the forestry in India and all these publications are worthy of being read. The international review of the Forestry and Forest Products, which is published by the F.A.O. under the title of 'Unasylva' brought out a Special Number for the 4th World Forestry Congress in the month of September 1954. This is No. 3 of Volume VIII. The Indian Forester also brought out a special Congress Number.

20. Many Governments of the foreign countries also brought with them brief accounts of forest and forestry in their own country and distributed them at the Congress. There were also many learned papers which were read and discussed at the Congress and quite a number of films were also shown to the delegates. The Japanese delegation distributed two booklets, one entitled "The summary of Forestry in Japan" and the other, which is very finely illustrated called the "Forests in Japan".

21. On the morning of 22nd December 1954 the momentous and historic session of the 4th World Forestry Congress concluded and I was glad to be present on this occasion. I made an extempore speech which was followed by speeches from the chief delegates from Russia, Belgium, U.S.A., France etc., and Mr. Leloup. It was obvious that every one was highly pleased with the Congress and they also found the arrangements that we were able

to make as completely satisfactory. The various officers of the Institute as well as the students and other people spared no pains and our thanks naturally go to them all. I believe in not doing a thing rather than doing it badly and, I am, therefore, glad we achieved a high degree of success in looking after all these distinguished people who visited India on this occasion. I feel happy and proud that everything went off so well, and we were able to create an excellent impression on the foreign delegates not only by the hospitality, which we offered them but the various forests they saw, the Indian forest scientists that they met and the officers they came across. On hearing what these great authorities had to say about Forestry Education, forest research and forest work in India, I think, we have reason to feel proud of what exists in India in the field of Forestry although no one is more conscious than I am of our deficiencies, our difficulties and our slow progress, which deserves to be accelerated at least ten-fold in almost every branch of the science and practice of Forestry.

22. Before I leave this subject, it is my duty to express my personal gratitude to all the State Governments and their officers for the sincere co-operation they gave us throughout. It was also good of the Ministers in charge of Forests to attend the plenary session, which naturally added to the importance of the event. The Institute deserves congratulations for the Museum buildings they put up and all the State Governments deserve to be thanked again for the remarkably fine exhibitions they arranged. I performed the opening ceremony of the Exhibition on the 12th December and made a brief speech on the occasion (Appendix IX).

23. The other great event of the month was the celebration of the Silver Jubilee of the I.C.A.R. We had arranged this to synchronize with the annual meeting of the Indian Council of Agricultural Research. After the Standing Committee meeting on the 13th December, the Silver Jubilee Exhibition arranged by the I.C.A.R., was opened by the President of the Republic of India, Dr. Rajendra Prasad. Shri Damle, Vice President of the I.C.A.R., gave a brief account of the work of the Council followed by a speech by the Minister for Food & Agriculture, Shri A. P. Jain. I am enclosing herewith copies of these speeches and that of the President, which are Appendices X, XI and XII, respectively. There was a big gathering at this opening ceremony and the Exhibition was praised by

every one. It is proposed to show it at the next session of the Indian National Congress at Avadi. For celebrating the occasion, the I.C.A.R., in co-operation with the T. C. M. produced a nice film as well as a booklet telling the story of the I.C.A.R., in brief. It may be possible to lend the use of the film to States and provide copies of the booklet on demand.

24. On the 15th December I presided over the Governing body meeting of the I.C.A.R., and made a brief speech, which is appendix XIII. As a formal meeting of the Ministers of Agriculture, Co-operation etc., was held in Srinagar, there were not many subjects, which could be discussed at another such meeting. Nevertheless I had arranged for the Ministers to meet at an informal meeting where the following subjects were discussed:

- (1) Farmers' Forum,
- (2) Constituting a Rice Committee or Commission,
- (3) Review of the position of fertilizer supply in the country by the end of the year 1954,
- (4) Publicity arrangements in the States,
- (5) Organization of campaigns of intensive cultivation.

I am attaching herewith the office notes prepared for this meeting on items (2), (3) and (4) (Appendix XIV). Minutes of this meeting would be sent to you in due course, but I may state here briefly the decisions taken on these items:

Item (1) After an illuminating discussion, it was agreed that it would be highly useful to proceed with the formation of Farmers' Forums throughout the country. The Ministers promised all support.

Item (2) The need of having some special organization for looking after cultivation and research of rice as the biggest single crop in the country was unanimously accepted. The suggestion was also approved at a meeting of most of the members of the I.C.A.R., the next day after the Annual General meeting of the I.C.A.R., was finished.

Item (3) It was agreed that the requirements of each State may be reconsidered by the Ministers and if any change was considered necessary, the same would be communicated at an early date.

Item (4) The publicity proposals made in the Note were accepted.

Item (5) This was noted.

Besides the above, it was also agreed that definite proposals for interchange of practical farmers from one State to another should be taken up by the I.C.A.R., as early as possible.

The next day i.e. 16th December, the I.C.A.R., met at its Annual General Meeting. My speech on this occasion forms Appendix XV.

25. On the 19th December I inaugurated the All India cane-growers' Conference. This was their first All India session at which Shri Dip Narayan Sinha, Minister for Co-operation, Bihar presided. Sardar Lal Singh, M.P., in his welcome speech raised various points with regard to sugarcane cultivation and the interest of and prices paid to the sugar-cane growers. I made a brief reply and took the opportunity of correcting a misleading impression that was likely to be created as a result of a press report of my speech as President of the Punjab Farmers' Convention in Amritsar. The report gave an impression as if I had declared myself unequivocally in favour of the imposition of immediate ceilings on present holdings. To the extent the Planning Commission has recommended this and the Government have accepted, I am certainly committed to. But what I actually said was something quite different. As it was a meeting of land-holders, I told them that mere opposition to ceilings could not either be appreciated by many people nor lead to any fruitful results. The real thing that those people who have doubts about the imposition of ceilings on present holdings being of national benefit was to educate public opinion in favour of their view and to justify their contentions not merely by angry words but by facts, figures and a thorough and convincing study of the problem. I also pointed out that in putting forward their views they must take into due consideration the fact that ours was intended to be a Welfare State and so whatever we do must ultimately aim at the greatest good of the greatest number. They could not, therefore, refuse any quarter being given to the principles of social justice. But what they could legitimately claim was that in trying to do justice to some no blatant injustice be meted out to them.

26. It has been brought to my notice that the scale of pay of Veterinary Assistant Surgeons in the Punjab Animal Husbandry Department are not adequate enough to attract Veterinary Graduates for service of the State. It

seems the present scales of pay in the Department were sanctioned some thirty years ago and are lower than the revised scales of pay in almost all other part A States. It is, therefore, advisable that the present scales of pay of the State Veterinary Department be revised so that the Veterinary Graduates may be encouraged to enter the State service and the artificial shortage which has been created may be removed in the interest of the smooth working of the national development projects.

27. On the 26th December I went to Allahabad for inaugurating the 15th Annual Conference of the Indian Society of Agricultural Economics. This Conference was being held at Allahabad on the same day after a lapse of full ten years. Prof. E. C. Bannerji, Vice Chancellor of the Allahabad University delivered a speech of welcome, extracts from which form Appendix XVI. The conference was presided over by Prof. D. R. Gadgil of Poona. My speech on this occasion forms Appendix XVII. Prof. Gadgil dealt with in his Presidential Address, among other things, with the question of distribution and utilization of surface. This speech was fairly well reported in the papers and hence I have not included it in this letter. This letter has also already become very bulky and I, therefore, hesitate to add anything more to it. I, however, think that the speech and proceedings of the Conference are worthy of attention.

28. I had planned to go to Patna on the 27th for attending a meeting of the Soil Conservation Society of India but was compelled to cancel this visit and merely send my speech for being read at the meeting. It forms Appendix XVIII. Appendix XIX is a text of an article sent to "Commerce, Bombay" under the title "Agriculture under the Five Year Plan."

29. The Government of Saurashtra has sent me a brief note on the progress of Gir Forest Renovation Work in the State. It is Appendix XX. Shri Hardayal Singh, Chief Whip of the Himachal Pradesh Congress Legislature Party had also sent me a copy of his report on Chini tahsil and its problems. A summary of this report will be found at Appendix XXI.

30. Appendix XXII contains a note on sugarcane research and development work carried out under the aegis of the Indian Central Sugarcane Committee. I hope it will be found useful.

31. Besides the two most outstanding events, there took place the first conference of the Director of Land Records, Agricultural Statisticians and Agricultural Economists which met at Delhi on the 3rd and 4th December 1954. I had the honour of inaugurating this conference by a speech Appendix XXIII. I am also enclosing recommendations of this meeting as Appendix XXIV. Appendix XXV is a copy of my speech at the 10th Anniversary of the Economic & Statistical Organization of the Ministry of Food & Agriculture.

32. When I was in Japan in October 1954, I had some talk with Dr. Pawar of Hyderabad with regard to the utility of the Japanese hoe and the saving of cost on the production of rice. I had also got from him a hurried note on the point before I parted company with him in Japan. I could not include it in my last letter but I was glad to find that the Hyderabad Government has issued a better drafted note as a Press Note No. 103 dated 18th December 1954 bearing on the subject. The following is the text of this Press Note, which, I think, deserves being quoted in extenso:

"Press Note No. 103, dated December 18, 1954".

REDUCTION IN THE COST OF PRODUCTION OF RICE. "Time is fast moving from a seller's to a buyer's market. This is specially true of agricultural commodities and rice is no exception. Its price is falling in almost all markets. This fall in prices is causing quite a lot of concern to rice farmers. Some of them still think in terms of the fancy prices got in the blackmarkets. But it would be more realistic to face the future with new techniques that would lower the cost of production and at the same time increase per acre yields. The Japanese method of cultivation is a solution in the right direction. During the current 'abi', although the method was widely used all over the State, the amount of plant nutrients applied was below recommendation. The common argument was that plant nutrients are expensive. The following two ways are suggested to enable farmers to maintain soil fertility. All rice farmers should grow more and more of the two new green manure crops, *Glyricidia maculata* and *Sesbania speciosa*. Seeds and seedlings of these crops are being supplied by the Agriculture and Forest Departments. Right now, more than ten thousand seedlings of *Glyricidia*, fit for immediate planting

are available. The seedlings can be bought from the Forest Nursery, Himayatsagar Farm, at the rate of one to one and a half anna each. A full grown *Glyricidia* bush is a permanent asset to every rice farmer and will furnish during the season 40 to 50 lbs. of green matter per bush. *Sesbania speciosa* is sown in nurseries and transplanted along the bunds of the rice fields. A beautiful crop of *Sesbania* is growing on the Government Experiment Stations of Rudroor (District Nizamabad) and Dindi (District Nalgonda). If the two above mentioned green manure crops are used the fertilizing bill can be reduced by half. The other way of saving money for fertilizing the rice fields is by the use of the rotary weeder. A rotary weeder costing only Rs. 20 a piece will, among other benefits, help the rice farmer to:

- (i) cut down his weeding bill by Rs. 15 to Rs. 20 per acre.
- (ii) press the weeds into the soil and thus convert it into manure.

The saving so effected should be utilised for buying fertilizers. The low seed rate recommended in the Japanese method also helps the farmers in effecting economies. The amount so saved should also be invested in buying fertilizers.

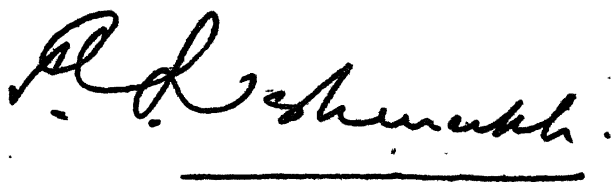
Quite a large area of our rice farms is of loamy and clayey soils. These are not easy to puddle and so farmers give repeated puddlings with their wooden ploughs before the soil becomes fit for transplanting. In such cases the use of puddlers in places of the wooden plough is available. The implement is of local manufacture, durable and very efficient. The use of the puddler results in economy in manual and animal labour.

Wherever transplanting is not possible, the use of line sowing is recommended. Unless the crop is either sown or transplanted in straight rows, most of the improved methods are not easy to practice.

Therefore, in the face of falling prices, rice farmers can still keep their heads above water, if they employ low seed rate, sow or transplant their crop in rows, grow "*Glyricidia* and *Sesbania* as green manures and use the puddlers and the weeder on an increasing scale."

33. Lastly I am glad to enclose as Appendix XXVI a detailed and valuable letter by my friend Shri Bhaktavatsalam. This letter was accompanied by a large number of enclosures, which I have listed in Appendix XXVII with regard to some of which brief notes have also been added. Those marked by an asterisk are printed pamphlets, copies of which could be obtained from him by those interested. My broadcast on "Crop Competition Fortnight for Rabi Sowings" forms Appendix XXVIII.

Yours sincerely,



P. D. Shrivastava

To

All Ministers of Agriculture,

Co-operation,

Forests, etc.

MINISTER FOR AGRICULTURE'S MONTHLY CIRCULAR LETTER

LIST OF APPENDICES

- Appendix I—Broadcast by Dr. P. S. Deshmukh, Union Minister for Agriculture on 2nd December, 1954 in connection with the IV World Forestry Congress.
- Appendix II—"Forestry, the Foster-mother of Agriculture" by Dr. P. S. Deshmukh, Union Minister of Agriculture.
- Appendix III—Speech by the President of India inaugurating the Fourth World Forestry Congress at Dehra Dun, December 11, 1954.
- Appendix IV—Welcome Address by Shri K. M. Munshi, Governor of Uttar Pradesh, at the Fourth World Forestry Congress at Dehra Dun on December 11, 1954.
- Appendix V—Welcome Speech by Dr. P. S. Deshmukh, Union Minister for Agriculture, on the occasion of the President's inauguration of the IV World Forestry Congress at Dehra Dun on December 11, 1954.
- Appendix VI—Report on the Progress made since the 3rd World Forestry Congress held at Helsinki, Finland in 1949 read by Mr. Marcel Leloup of the F.A.O., on the occasion of the IV World Forestry Congress.
- Appendix VII—Extract from Summary Report & Recommendations of the Fourth World Forestry Congress, India 1954, Section III: "Productive Functions of the Forests".
- Appendix VIII—Recommendations of the IV World Forestry Congress held at Dehra Dun, India on the "Tropical Forestry".
- Appendix IX—Speech by Dr. P. S. Deshmukh, Union Minister of Agriculture at the opening ceremony of the All India Forestry Exhibition on 12th December, 1954.
- Appendix X—President's speech at the Silver Jubilee Exhibition of the Indian Council of Agricultural Research in Delhi on December 11, 1954.
- Appendix XI—Welcome Speech of Shri K. R. Damle, I.C.S., Vice-President, I.C.A.R., on the opening of Silver Jubilee Exhibition of I.C.A.R.
- Appendix XII—Address of Shri A. P. Jain, Minister for Food and Agriculture at the inauguration function of the Indian Council of Agricultural Research Silver Jubilee Exhibition on 14th December, 1954.
- Appendix XIII—Speech by Dr. P. S. Deshmukh, Union Minister for Agriculture, at the opening Session of the Governing Body Meeting of the I.C.A.R., on 15th December, 1954.

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Appendix XVIII—Speech by Dr. P. S. Deshmukh, Union Minister of Agriculture, at the Annual General Meeting of the Soil Conservation Society of India held at Patna on the 27th December, 1954.

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Appendix XX—Note on Progress of "Gir Forests Renovation work in Saurashtra".

Appendix XXI—Report on Chini Tehsil of Himachal Pradesh and its problems.

Appendix XXII—Note on Sugarcane Research and Development work under the aegis of Indian Central Sugarcane Committee.

Appendix XXIII—Inaugural Address by Dr. P. S. Deshmukh, Minister for Agriculture on 3rd December, 1954 on the occasion of First Conference of Directors of Land Records, Agricultural Statisticians and Agricultural Economists held on 3rd and 4th December, 1954.

Appendix XXIV—Recommendations of the First Conference of Directors of Land Records, Agricultural Statisticians and Agricultural Economists held on 3rd and 4th December, 1954.

Appendix XXV—Speech delivered by Dr. P. S. Deshmukh on the 3rd December, 1954 at 5.30 P.M., on the Tenth Anniversary of the Economics and Statistical Organisation of the Ministry of Food and Agriculture.

Appendix XXVI—Extracts of D.O. No. 135935 BIII/54-6, dated 31st December 1954 from Shri M. Bhaktavasalam, Minister for Agriculture, Fort St. George, Madras to Dr. P. S. Deshmukh, Minister for Agriculture, Government of India.

Appendix XXVII—List of Enclosures to Shri M. Bhaktavasalam, Minister for Agriculture, Madras's letter.

Appendix XXVIII—Broadcast by Dr. P. S. Deshmukh, Union Agriculture Minister on "Crop Competition Fortnight for Rabi Sowings" on the 3rd December, 1954.

APPENDIX I.

BROADCAST BY DR. P. S. DESHMUKH, UNION MINISTER FOR AGRICULTURE ON 2ND DECEMBER, 1954 IN CONNECTION WITH THE IV WORLD FORESTRY CONGRESS.

On the 11th of December, 1954, Dr. Rajinder Prasad, the President of India, will inaugurate the IV World Forestry Congress at Dehra Dun. For several reasons this will be a momentous occasion. The first World Forestry Congress was held in 1936 at Rome, the second at Budapest in 1936 and the third at Helsinki in 1949. The Food and Agriculture Organisation which came into existence in 1945 associated itself fully with the third Forestry Congress. And now as if in recognition of the fact that forestry is not confined to Europe, the IV World Forestry Congress, sponsored by the F.A.O., is to be held in India, at the invitation of the Government of India. This session will be particularly memorable because it will be combined with the first meeting of the World Tropical Silviculture Congress, which will pay special attention to the problems of tropical forestry. It is gratifying that the claims of Asia in general and of India in particular have been recognised by the acceptance of the offer of the Government of India to hold the IV World Forestry Congress in India. And it is obviously appropriate that Dehra Dun which is known the world over as the home of our Forest Research Institute and Colleges should be selected as the venue of the Congress.

2. Forestry as a scientific pursuit dependent on a number of scientific disciplines is of European origin. The earliest countries to develop technical management of forests on defined principles of regeneration, tending, harvesting and yield regulation were France and Germany. India was perhaps the first country outside Europe and certainly the first one in the tropics to introduce scientific management of its forests. The appointment by the Government of India in 1864 of the first Inspector General of Forests, in the person of Sir Dietrich Brandis, a German Botanist and Forest Officer, was the starting point of the reservation of our forests, the enactment of our forest legislation, the organisation of our forest departments and the tremendous tasks of exploration of the botany, entomology and silviculture of our forests, the fruits of which we enjoy to-day. Out of total land area of 1,266,890 sq. miles, 274,050 sq.

miles amounting to 21·63 per cent. of the country are under forests. We must pay tribute to the enlightenment of our British administrators which impelled them to develop scientific forestry in India at a time when it did not exist in their own home country. It stands to their lasting credit that they did not hesitate to resort to the continent of Europe for forestry training and for forestry experts in the early years of the Forest Department in India. It is curious to reflect that a threatened shortage of teak timber for the British Navy was the primary cause of the interest which the British rulers took in Indian forestry.

3. India is a large country, of which the southern half is a peninsula bounded by the Arabian Sea and the Bay of Bengal, and the northern half is a broad alluvial plain protected from the cold winds of Central Asia by the massive ranges of the Himalayas. Within the limits of this vast land which stretches over both the tropical and temperate zones and drives a wedge as it were into the Indian Ocean and divides it into two Seas and which extends in the vertical plane from sea level to over five miles in elevation, almost every type of soil and climate encountered in the world, is represented. There are red loams, black soils and laterites derived from the oldest rocks of the earth in the Deccan peninsula. The North Indian plains are built up of alluvial deposits washed down from the Himalayas. Here you may find miles and miles of land where you cannot find a stone even of the size of a pebble and the swollen rivers shift their unconstrained beds over the flat and featureless land. Podsolis of the European type are found in the coniferous forests of the Himalayas. We have some of the rainiest spots in the world. We have also regions of little or no rainfall. In all the factors that determine vegetation, that is to say, in topography, geology, soils, temperatures, humidity, wind currents, India may fairly be said to sample the earth.

4. It is, therefore, not surprising that this great range of climatic and adophic conditions is reflected in our rich and diversified flora and fauna, which are in a measure typically representative of the world's flora and fauna. Coniferous forests, moist and dry deciduous forests, wet evergreen forests, cane brakes, tidal forests and mangrove swamps, alpine deserts, sandy deserts, savannah and grass lands, and a great many forms of wild life are to be found in India.

5. The presence of a particular community of trees, shrubs, herbs and grasses in a given habitat is not a matter of accident. It is the resultant of the prolonged operation of the various factors of climate and soil and of the

interactions and reactions of the vegetation both on itself and on the environment. Man himself and his domestic animals influence the character of the forest profoundly through feelings, grazing and fire. The forest thus is a sensitive organism shaped primarily by natural causes and transformed or modified by human intervention, constructively through skilled scientific management or destructively through overuse and abuse.

6. Ecologists classify natural vegetation into various types, according to its form, structure, composition and other characteristics and according to the degree of its stability in relation to the environment. Some idea of the wealth and complexity of India's natural vegetation may be gained from the fact that the number of species found in this region is about 30,000 and that as many as 15 groups comprising over 100 forest types have been distinguished even in a preliminary and rather rough and ready classification. In some ways this exuberant wealth of species is an embarrassment. The difficulty in applying scientific management to such complex communities of trees can well be imagined. Some of the major problems of Indian and indeed of all tropical silviculture arise from the fact that only a few of the many species occurring in the mixed forests are marketable. The others cannot be extracted and sold remuneratively in the present state of our knowledge. Uses have to be found for them and markets have to be created through research and through the development of industries. It often happens that the more valuable components of our mixed forests do not regenerate themselves naturally in adequate quantities. If extraction is confined to the valuable species and natural reproduction does not keep pace with the extraction, the inevitable result is to reduce progressively to vanishing point the proportion of the valuable species in the crop, as well as the out-turn of valuable timber. This contingency is sought to be countered by making plantations of the valuable species, but this solution gives rise to a series of new problems connected with protection from insect and fungal diseases and maintenance of soil fertility.

7. Some of the best timbers in the world grow in India. It is probably true that more species of timber are marketed and used in India than in any other country. It would make a long list to enumerate the commercial woods of India. Teak, rosewood, sal, gurjan, padauk, deodar, kail, chir, fir and spruce are among the most important of these. Sandalwood, in which India enjoys a monopoly, is in a class by itself. Our bamboo flora is rich, over 130 species being found in this country. Bamboo has long been known

as the poor man's timber, but in recent years it has assumed great importance as a raw material for pulp and cellulose. We are now barely at the beginning of our study of the technology of bamboos—a study which promises great developments.

8. Forestry confers manifold benefits on the community in tempering the climate, in protecting the soil and regulating stream flow and in producing timber, firewood and host a items of minor produce. It is the prop and mainstay of our agriculture. It is the home of our rich heritage of wild life. If forestry is to be practised properly, it must have the quality of dynamism within the laws of its being. It is first and last an instrument of human welfare and if it is to deserve well of the people and earn their good-will, it must keep in step with their cultural, economic and industrial progress.

9. I understand that the basic principle of forestry is to produce sustained yields in perpetuity. This is an obviously sound conservative principle. I should, however, like to leaven it with the germs of progress and imbue it with a dynamic quality. I would suggest the adoption of the ideal of expanding but sustainable yields. The production of our forests can be increased by reducing waste in felling, conversion, transport and storage, by closer and more careful utilization, by finding uses for unsaleable species, by improving the technical qualities of our secondary timbers through processing and by making planned efforts to bring into use more and more of the many species of trees, shrubs and herbs that are found in our forests.

10. It is no longer sufficient, in a country like ours, for forestry to be confined to what may be termed its rightful domain, namely, the areas declared by law as reserved and protected forests. It must emerge from its forest fastnesses and go to where the people live and toil and help in the task of growing trees along roads, in schools and office compounds, in village wastes and even in and along fields. It must reclothe our bare lands with trees and restore the lost reverence of the people for tree growth. The 'Vana Mahotsava' or annual festival of trees which was introduced in 1950, has been taken up enthusiastically by the people, despite scoffers and sceptics, I hope it will expand and gain strength as time goes on.

11. I am sure that the forestry experts attending the IV World Forestry Congress will give us valuable guidance in solving our forestry problems and in developing our forests. I wish them all a warm welcome, an enjoyable stay in India and a successful outcome to their deliberations.

APPENDIX II

FORESTRY, THE FOSTER-MOTHER OF AGRICULTURE—BY DR. P. S. DESHMUKH, UNION MINISTER OF AGRICULTURE.

Separated from the rest of Asia by the massive Himalayan ranges extending over a length of about 1,500 miles, and isolated by the sea on its eastern and western flanks, India may well be described as a continent within a continent. Straight as the crow flies, the distance between Simla, the summer resort in the Himalayas of erstwhile British Government and Cape Comorin is about 1,700 miles. The east-west extent of the country from Sadiya (Assam) to Porbander (Saurashtra) is about the same; the total area covered is about $1\frac{1}{4}$ million sq. miles.

Forests of the vast region naturally reflect reaction to a diverse range of climatic and edaphic factors, the extremes of which are provided by the snow-desert of the inner Himalayas on the Tibetan border, and the saline desert of Rajasthan. The mercury rises above 120 F at Bikaner and dips to—47 F at Dras (Kashmir). The annual rainfall presents no less striking a contrast, the range being furnished by Jaisalmer (5 in.) and the Khasi Hills (Assam) 40 feet.

The flora of India is as rich as it is varied, both in composition and value. The number of species met with in the region is estimated at 30,000, the vast majority of which are of no more than academic interest. The chief among the valuable timber species are the conifers (pines, firs and deodar) which occur in the Himalayas; sal (*Shorea robusta*) the principal species of the sub-tropical zone, and the wellknown teak (*Tectona grandis*) which is met with throughout the Deccan plateau. Other species of commercial importance are *Dipterocarpous* spp, *Acacia* spp., *sisson* (*Dalbergia sisson*), sandalwood (*Santalum album*) and bamboos.

Plant associations exhibit variations typified by Alpin vegetation, Himalayan conifers and oaks, sub-tropical and tropical deciduous forests, moist evergreens, estuarine mangroves and thorny xerophytes. In short, in the forests of this peninsula we find a fair reflection of the vegetation

of the entire globe. Few countries can vie with India in providing a venue for discussion on both tropical and temperate forestry. And it is just as well that the Tropical Forestry Congress has been merged with the forthcoming Fourth World Forestry Congress at Dehra Dun.

Although a measure of protection was afforded to our forests in the past by their own inaccessibility and inhospitable nature, scientific forest management did not come to be introduced in the country until the middle of the nineteenth century. India enjoyed the distinction of being the first country to have enunciated its forest policy way back in the nineties of the last century. The progressive realization of the importance of forests in the economic and the physical field, and the revolutionary changes which had taken place in the political field during the interval which had elapsed led, however, to a renunciation of the National Forest Policy of India in 1952.

The new policy takes into account the relentless pressure on forests to meet the needs of an ever-increasing population for food, fuel and fodder. No longer are forests to be regarded as an inexhaustible reserve for the extension of agriculture in quest of food. The intrinsic right of forests to occupy land permanently for their protective and productive functions has been accorded special recognition in our national economy. This has been done, I am happy to record, with a singular unanimity of opinion of men who matter. Earnest efforts are afoot to step up the proportion of land under forests where it is deficient. The importance of forests in mitigating the rigours of climatic conditions in this tropical region, their function in the conservation of soil and moisture, the part they play in the development of industry, communications, river valley projects and their hitherto unsuspected role in national defence, have come to be better understood and appreciated. Forestry in India is no longer regarded as a mere handmaid, but a foster-mother of agriculture. Forest have been accepted as essential to maintain and increase the productivity of agricultural land by providing an alternative fuel to divert the cow-dung manure from the village hearths to village fields to replenish their fertility. The importance of treelands in the rural economy of a region where agriculture constitutes the mainstay of the vast bulk of population needs no emphasizing.

It will be seen that forest development in India has followed a pattern which is none too unfamiliar in other tropical lands. It is to be hoped that our experience in the

particular field will provide an instructive background for discussions on tropical forestry.

India's National Festival of the Trees, Vana Mahotsava, deserves here more than passing mention. Conceived against the background of the sacred import of our forests which once covered the land and cradled the Aryan civilization, a countrywide drive for the planting of trees was first organised in July, 1950. Ever since then, during the first week of July every year, every one, from the President of the Republic down to the humble peasant, associates himself with this festival by planting a tree. The affection for, and interest in, trees is sought to be inculcated among the masses and more particular among the youth of the land. Educational institutions have come to play an important role in popularizing this festival. It was at the instance of India that the resolution on the World Festival of the Trees came to be adopted at Romé in 1951 by the F.A.O.

As a matter of fact the basis on which international co-operation in forest management is to be sought for must needs be regional rather than global. Countries with common problems would naturally evolve a common programme requiring for its execution a common effort. Only the fundamental policies of various regions lend themselves to integration on a global basis.

I take this opportunity of wishing God-speed to the deliberations of the forthcoming Congress. I sincerely trust that it will provide a forum for the exchange of experience, an opportunity for the provocation of thought and engender an *esprit de corps* among the foresters of the world, to whom I extend a cordial invitation to this ancient land, the land of Buddha and Gandhi.

APPENDIX III

SPEECH BY THE PRESIDENT OF INDIA INAUGURATING THE FOURTH
WORLD FORESTRY CONGRESS AT DEHRA DUN, DECEMBER 11, 1954

I feel it a great honour to inaugurate this memorable session of the World Forestry Congress, when for the first time it meets outside Europe in an eastern country. The importance of the occasion is heightened by the fact that it is combined with the first session of the World Tropical Silvicultural Congress. It is fitting that the first of what I hope may be a regular series of Tropical Silvicultural Congresses should be held in India, which has been working in this difficult field of forestry for close on a century. I am therefore happy that the offer of the Government of India to undertake responsibility for holding the Fourth World Forestry Congress has been accepted by the Food and Agricultural Organisation. That Organisation has extended its full co-operation in the difficult task of organising the Congress, for which we are deeply grateful.

2. I believe we have here today as representative a gathering of world foresters and technicians connected with wood-based industries as has ever assembled in any place before. Delegates from 51 countries and representatives of a number of organisations such as the Food and Agriculture Organisation, UNESCO and I.L.O. are present at this inaugural session. It is a matter of gratification that even countries which are not members of the F.A.O. have considered the Congress important enough to send strong delegations to participate in its discussions. In the name of India, I extend to all the members of the Congress a most cordial welcome. Many of them have taken part in the excursions which were organised in the different quarters of the country. I hope they have been able to see something of our forestry activities and of the art and culture of this ancient land.

3. It is appropriate, I think, that the Congress meets at Dehra Dun which is universally recognised as the headquarters of Indian forestry. The Forest Research Institute in whose Convocation Hall we are assembled today is one of the oldest institutions of research and education in the

country, dating back as it does to 1878 when it started as a modest school for training forest rangers. During the three quarters of a century of its existence, it has played a leading part in the development of Indian forestry. I believe its work is not unknown in international forestry circles. As one who was at one time closely associated with the work of the Institute in my capacity as Minister of Agriculture, I share the pride and satisfaction that the members of its staff feel in having the session of the Fourth World Forestry Congress meeting on its premises.

4. I observe that the Congress has a comprehensive agenda before it and I note with satisfaction that Tropical Forestry figures prominently in it. The discussions will no doubt be of a technical character, but if the recommendations which emerge from the discussions are to be fruitful, they must inevitably take note of administrative, budgetary and social considerations. Forestry is not an end in itself. As an aspect of land utilisation, its value and significance are exactly in proportion to the sustained contribution it makes to human welfare, tangibly and directly through the produce that comes out of the forest and the numberless products that it may be processed into, subtly and indirectly by protecting the soil and conditioning the climate, thereby sustaining the physical bases of life, by providing a refuge and home for wild life which but for the forest would perish and disappear from the earth, and not the least through the recreational and aesthetic benefits of forests. In India the forest is closely bound up with our religious and spiritual heritage. Whatever function the forest performs, the touchstone and measure of its value is human satisfaction.

5. Wood is an essential of human life as fuel, as a versatile structural material and as raw material of many products which are indispensable to modern life. Forests are efficient agents for soil conservation, for flood control and for stream flow maintenance. In principle, it should not be difficult for any country to work out the proportion of its territory that forests should occupy and the manner in which they should be distributed so as to yield in full their productive and protective values. But in hardly any country would it be possible to secure a logically desirable and theoretically correct allocation of land to agriculture, pasture and forestry, because one is not planning on a clean slate so to say. In an old country like India, the pressure of the human and cattle population on the soil makes the problem of getting sufficient land under forest one of peculiar difficulty. An approach to the target fixed can

often be made by afforesting waste lands, by rehabilitation of derelict wood lands, and by encouraging village forestry. There are, however, limits to what can be done in these directions. Every country has to strike a balance between the competitive claims of agriculture, animal husbandry and forestry for use of the land for productive purposes and this balance must in the last resort be based on considerations of what is practically possible in a given set of conditions rather than on what may be theoretically desirable. In the older countries it may happen that the area under forest plus the area available for afforestation is less than what is considered the desirable minimum.

6. It is precisely these conditions of shortage that provide the spur for intensive management and utilisation of forests. They hold out a challenge to the forester to develop his forest so as to produce on a sustained basis the maximum possible yield, to transform it so as to increase its value as a productive unit and its efficiency as a protective agent to prevent loss by fire, disease and maltreatment and to avoid waste in felling, extraction and storage. Likewise, they hold out a challenge to the research worker and the technician to devise methods and processes for upgrading the service, life and technical properties of inferior woods, so that species which are now left to rot in the forests as worthless may be put to economic use and so help to meet the timber deficit.

7. We are fortunate in India in that some of the finest woods in the world grow in our forests. Teak, sandalwood, rosewood, padauk, gurjan are commodities of international commerce. But these species grow in tropical forests in mixture with a multitude of other species of much lower economic value and they present serious problems of regeneration and management. To what extent is it safe or wise to increase the proportion of species of high value by artificial means? What are the steps to be taken to create a market for the secondary species of a mixed tropical forest, which are in poor demand? These and a host of other questions connected with silviculture and management of tropical forests will no doubt engage the attention of the Congress. Its recommendations will be awaited with great interest.

8. The Government of India declared its forest policy as long ago as 1894. This was probably the earliest formal statement of the broad principles that should govern the administration of forests ever made by any country. This policy worked well on the whole, but two world wars.

followed by the advent of independence had made it out of date. A revised statement of forest policy more in consonance with the altered status and conditions of the country was issued by the Government of India in 1952.

9. In forestry as in every field of national activity we in India are on the threshold of a stupendous effort of national reconstruction, under our first Five-Year Plan. The first steps have necessarily to be slow, but already substantial progress has been made. The old princely States, which occupied a third of the country have been merged with the old provinces or integrated into new democratic States. In most of these new States the Forest Department occupies a position of importance and is faced with difficult tasks of organisation and development. In several States, private forests have been resumed by the Government as a result of the abolition of zamindari and jagirdari. In States where private forests continue to exist, their management has been brought under a measure of control by the Forest Department. In a democratic State the successful pursuit of forestry, extending as it does so largely in time and space, is dependent on the good will of the people. Popular enthusiasm for tree planting and support for forest policy is being evoked by our annual 'Vana Mahotsava' and by a campaign of education and propaganda. Forestry has a great role to play in the agricultural and industrial regeneration of India. I am confident that the deliberations of this World Forestry Congress will point the way to fuller and more intensive development of the World's forests, especially of its tropical forests.

10. I wish the Congress God-speed and hope that the members will have a pleasant and profitable sojourn in Dehra Dun.

APPENDIX IV

WELCOME ADDRESS BY SHRI K. M. MUNSHI, GOVERNOR OF UTTAR PRADESH, AT THE FOURTH WORLD FORESTRY CONGRESS HELD AT DEHRA DUN ON DECEMBER 11, 1954

Mr PRESIDENT AND FRIENDS,

I DEEM it a great privilege to have this opportunity of extending to you all a very hearty welcome to this Fourth World Forestry Congress, which is meeting to-day at the traditional centre of forestry in India. My pleasure is all the greater because in 1951, as Leader of the Indian Delegation to the sixth Session of the United Nations Food and Agriculture Organization's Conference at Rome, I had the honour of inviting this Congress to India. My privilege is, indeed, unique, for I find in this congregation representatives not only of the member nations of the F.A.O., but also of the nations which have hitherto kept away from it. It is in name, as in fact, a World Congress.

In a sense, this is a unique gathering; it represents the world; it proves that world unity is no more a dream; it demonstrates beyond doubt that the nations of the world can sink their political differences and overcome their ideological inhibitions in matters vital to the very existence of man on earth.

We are faced to-day with the pressing problem, cumulatively created in the course of ages, by the pressure of an ever-increasing population; by the improvident demand made on the forest for wood as raw material for constructional purposes and industry; by the growing imbalance between land under cultivation and land under forest.

The problem is all the more serious because it is insidious. The damage caused by destruction of trees is not spectacular; it does not hit the headlines. The danger creeps on padded feet. Consequently, there is general indifference to the value of trees and more particularly to their role in re-conditioning mountain sides and river catchments.

The situation is rendered desperate because scientific forestry is studied and applied only in a few advanced countries, and even where a nucleus of forestry experts exists, the resources to avert danger are frightfully limited.

In many over-populated areas like India, there is constant encroachment of agriculture on forests which have

come to be looked upon as an inexhaustible reserve, of land for the production of more food to feed more mouths. Then again, forests are denuded to provide fuel for an ever-increasing population. Trees are felled in vast numbers without any attempt towards replacing them. Bereft of tree cover, the hill-sides are unable to conserve rain water which rushes down in torrents to flood our rivers. The increase in population leads to a vicious circle, out of which there seems to be no escape. Demand for more food leads to those very conditions in which food becomes difficult to grow.

In India, for instance, we have only 20 per cent. of the total land area under forest, which, according to the estimate of experts, should be 33 per cent. And in a State like Uttar Pradesh, where land has to bear the burden of supporting the population of over sixty millions, with a density of 680 per square mile, we have the spectacle of having the highest proportion of land under cultivation and the smallest proportion under reserved forest. The situation is further worsened by the fact that these forests are ill-distributed to serve their purposes.

I would like to invite the attention of this Congress to two major problems, on the solution of which rests the maintenance of balance between the human population and food for its sustenance.

The first is that of the desert belt which extends from the Sahara across Syria, Anatolia and Arabia, through long stretches of the Iranian plateau, to Baluchistan and Rajasthan in India; and in the north, right through the basin of the Aralo-Caspian seas, the deserts of Kizil Kum and Kara Kum, the Balkash region; thence broadening out in the Chinese and Russian Turkistan, in the Takla Makan desert and the Gobi.

Though the Rajasthan desert is a comparatively small one, it threatens, to engulf the surrounding fertile lands of the Indo-Gangetic Plain which supports the vast bulk of the population of this country. The expanse of the desert and semi-desert lands covering an area of about 80,000 square miles has been fanning out for centuries, causing extreme aridity of peripheral lands. It presents a problem which requires to be tackled at an international level; it is a challenge to the foresters of the world.

The other problem before the Congress is rational land use. It might be that if the whole world had one Government with powers to enforce rigid forest regulations, the

present forest resources, managed scientifically, would suffice for the growing needs of man. But the realization of such a state of affairs is still a dream. Forest resources must, therefore, needs be planned on a regional basis. The problem of land use and the need for forest resources vary from country to country, as also does their technical administration. Many countries are not likely to have efficient forest administration for many years to come; nor have all the nations the means for planned utilization of their forest wealth. And, by the very nature of things, forests are easier destroyed than restored.

In 1950, India woke up to the danger attendant upon the denudation of its tree-growth. Tree-consciousness had disappeared from the popular mind. India's culture, as you know, was born and cradled under the shade of mighty forests. Planting and protecting of trees was once part of its socio-religious traditions, which by the passage of time had all but disappeared.

Wanton destruction of tree-growth had affected the climate of the land in no small measure. With the moderating influence of trees gone, the thermometer now registers 110° in regions which were once richly wooded and therefore cool. The glorious forests which once occupied the land are now remembered only in song and story.

In 1950, a new approach was brought to bear upon the problem. It was summed up in the slogan: Tree means water, water means bread and bread is life. The inauguration of the Vana Mahotsava—the Festival of Trees—led to an enthusiastic response from the people. During the last five years, as a result of the enthusiasm engendered by the movement, no less than 120 million trees have been planted by the people. Of these, at least 60 per cent. have been established. This planting of trees for shade and shelter distributed all over the country is the equivalent of about 130,000 acres with a planting distance of nine feet.

The mass consciousness aroused by this Festival also led to an increasing activity on the part of the Forest Departments of the country. Steps were taken to check the march of the Rajasthan Desert. The old forest policy enunciated in 1894 was replaced by a new and comprehensive policy to meet the needs of the Nation.

I would also like to draw the attention of this distinguished gathering of Foresters to the problem of floods, which has of late engaged the attention of the Government of India.

Plains at the foot of the Himalayas which are recurrently flooded during the monsoons get rejuvenated by fresh silt every year. Farmers find the soil rich, easily workable, and highly productive. The banks of rivers liable to floods easily grow into cities; and man equipped with modern science encroaches not only upon the flooded plain but on the bed of the river itself. When floods damage these precariously situated habitations, people clamour and demand protection against the evil which they have invited on themselves by their improvident practices. With every passing phase, the severity of floods increases, causing loss of property, of life and of land. The control of floods has, in consequence, come to constitute a vital problem throughout the Indo-Gangetic plain.

People naturally turn to engineering structures to hold the rivers within their banks. To my mind, these measures, important and of immediate use as they are, seek to cure the symptoms, not the disease.

In the quest for immediate relief measures for the protection of towns threatened with extinction, the role of the forest in the regulation and regimentation of the stream-flow is apt to be forgotten. It is for you as forestry experts to pool your knowledge and experience for the assessment of the part which vegetal cover plays in the control of floods.

I also find that in matters connected with flood control attention is easily rivetted to the protective works down streams and not to the proper management of their catchment areas which are responsible for the floods.

The question before us is whether flood control has not to begin at the beginning, by enforcing proper management of the catchments of the rivers and re-conditioning the mountain-sides.

Floods which thus constitute a serious problem in India, I dare say, are an equally serious problem in other countries. Perhaps it will be in the fitness of things if this body of forestry experts carefully examines this problem and gives us a lead in the matter.

On behalf of my State of Uttar Pradesh and its people particularly, again I heartily welcome the delegates of this World Conference. I wish your deliberations every success in dealing with the problems of such far-reaching significance.

APPENDIX V

WELCOME SPEECH BY DR P. S. DESHMUKH, UNION MINISTER FOR AGRICULTURE, ON THE OCCASION OF THE PRESIDENT'S INAUGURATION OF THE IV WORLD FORESTRY CONGRESS AT DEHRA DUN ON THE 11TH DECEMBER, 1954.

In extending a cordial welcome on behalf of the Government of India to the members of the IV World Forestry Congress, the diplomatic representatives and high dignitaries of various countries who are present here today, I have great pleasure in associating myself, with the remarks made by the Chairman of the Reception Committee, Shri K. M. Munshi. It was he who as Union Minister for Food and Agriculture, conveyed the invitation of the Government of India to the World Forestry Congress to hold its IV Session in India. It is gratifying to us, as I am sure it is to him, that he should be here today to receive and welcome the members of the Congress, which is meeting in a city in the State of Uttar Pradesh of which he is the distinguished Governor. For my part, I count it a great honour to be associated with this historic meeting of leaders in forestry and forest utilization from all quarters of the globe. It is a great privilege to have the opportunity of meeting and making acquaintance with them.

2. For a meeting of this character, this city of Dehra Dun which is known the world over as the home of our Forest Research Institute and Colleges and the headquarters of Indian Forestry, is the obvious venue. At the same time, it is only a provincial town and its resources in the matter of accommodation are somewhat limited. We are greatly indebted to the Defence Ministry and the Army authorities for coming to our aid by placing the residential and other facilities of the Military Wing of the National Defence Academy at our disposal for the purpose of the Congress. In particular we appreciate deeply the fact that they advanced the date of the passing-out parade of the Academy by a whole week, in order to fit in with the dates of the Congress. But for this neighbourly help of the National Defence Academy, the Organizing Committee would have found it exceedingly difficult to find appropriate accommodation for the international members and visitors.

3. The Organizing Committee has striven hard to study the comforts and meet the requirements of the members in the way of refreshments and amusements. I hope the members will find the arrangements satisfactory. The residential arrangements may possibly not come up to the standards of international hotels. I hope members will bear with us for any shortcomings in these respects.

4. In view of the wide range of topics to be discussed, the agenda of the Congress will be a crowded one and the discussions and conclusions are sure to be both interesting and important. But one of the chief values of an international gathering of experts, such as this, is the opportunity it affords for social contacts and informal conversations leading to sympathetic mutual understanding of the problems and circumstances of various countries, pooling of experience, the picking up of useful tips and, most important of all, the establishment of abiding personal relations. The names of eminent personages in foreign forestry cease to be mere names, as a result of these meetings, but assume shape and personality. During the ten days or so that this Congress will meet here, I hope a rich harvest will be reaped of personal friendships, of new inspirations springing from the meeting of minds and of international understanding not only in the field of forestry but also in wider fields of human endeavour.

5. The presence of the President of India here today is a tribute to the importance of this occasion. We are deeply appreciative of his kindness in making the journey from New Delhi to be with us on the opening day of the Congress, in spite of the many calls on his time. I will now request the President to inaugurate the Congress.

APPENDIX VI

REPORT ON THE PROGRESS MADE SINCE THE 3RD WORLD FORESTRY CONGRESS HELD AT HELSINKI, FINLAND, IN 1949 READ BY MR. MARCEL LELOUP OF THE F.A.O. ON THE OCCASION OF IV WORLD FORESTRY CONGRESS.

Progress of research—It is, in the first place, in the field of research that very important progress has, over the past five years been made; whether in the purely silvicultural field, where benefits can, in general, only appear after a more or less long period of time has elapsed, or on forest products, whose results, open to industrial application, can frequently appear much more rapidly and with consequences that are sometimes spectacular.

I should be quite incapable of reviewing here the progress made by research in all fields. I will merely point out a proof of this progress. For the classification of the wealth of reports on research and its results, technicians felt the need for the adoption of a new system recommended to all countries, and known as "The Oxford System of Deciman Classification for Forestry". A glance at this new classification suffices for one to realise the development complexity and variety of the subjects dealt with by research in forestry & forest products, and their ramifications and connections with the various basic sciences.

It must be noted, however, that this progress of research is not uniform either for all the subjects or for all countries and F.A.O. has paid particular attention during the past few years to redressing this situation and to trying to co-ordinate research, at least at the regional level.

Research can only be carried out where specialised government services, universities, forestry schools and industrial associations have been established. Although the majority of these institutions offer their services freely to less favoured countries, their aid is necessarily limited to certain fields. Consequently, it is absolutely essential that each country should itself undertake research on its own particular problems. In a number of cases, F.A.O. has, with the help of Technical Assistance experts, been able to assist countries in this undertaking.

It has, moreover, endeavoured to ensure a co-ordination of research on a regional or World basis, either by its publications (*inter alia* "Research in Forestry and Forest Products" issued in 1953), or by the organisation of meetings of experts, at which exchange of information on certain particularly important subjects was encouraged, forest fires, poplars and eucalypts, logging efficiency, research on new materials for the pulp industry, etc.

Finally, it gives all its aid to the International Union of Forest Research Organisations which, by encouraging contacts between research technicians, plays in this field an increasingly important role.

Forest Policy—But it would matter little whether forestry research made any progress, if the results thus obtained remained in the laboratory or the sample plots. It is essential that these results should be applied and that can only be done within the framework of coherent and rational forest policies.

The Third World Forestry Congress understood this so well that it laid down as the first of its recommendations that F.A.O. "prepare a statement of forestry principles for the consideration of Member Nations."

This recommendation has been fulfilled. The "Principles of Forest Policy" were established after long discussions and with the help and tenacity of eminent experts, among whom should be mentioned in particular two personalities closely connected with the World Forestry Congress, Mr. Saari, President of the Third Congress, and Mr. Chaturvedi, and also Mr O. J. Sangar who assumed with outstanding authority the Chairmanship of the Working Group which in 1951, in Rome, put the finishing touches to the final text of these "Principles". This text was submitted to the F.A.O. Conference and was unanimously approved by the Member Countries and the Governments to whom it was communicated have all expressed their readiness to ensure its application in their countries.

This widespread recognition is a development whose importance must not be underestimated. It was at least partly the reason which caused many countries to publish their national forest policy principles or revise the principles that until then had governed such policy. These countries, however, were often those most advanced in the field with which we are dealing here. A more important development is that many countries where forest policies

have until now been practically non-existent have applied to F.A.O. for assistance in establishing the foundations of such a policy. The experts we have sent to them have been confidently able to base their recommendations on the text of the "Principles", since that text had been approved by the very Government which was to be persuaded to take action. Progress, though naturally slow and difficult, has already been successfully made. In a general way that text provides foresters in all countries with a document which justifies their efforts and with a weapon which, wisely used, can make these efforts productive.

Development of forest policy—The "Principles of Forest Policy" are principles which may be criticised as being both too specialised and too general. You will read in the reports which have been prepared on this subject by the F.A.O. Forestry Division, how they could be incorporated in more general principles for the conservation of natural resources and how they can be adapted to regions, to specific countries or to special problems.

It is to one of these special problems, namely, forest range, that our Division first gave its attention when applying and adopting these principles to the question of forest policies for the Near East, a region where this problem is of particular importance and in recent years it has endeavoured to pursue vigorous action with the aid of the few technicians in these countries. A meeting of qualified experts was called and established, within the framework of forest policy principles, the "Principles of a forest range policy" which, I believe, will greatly facilitate the solving of the problem not only in the Near East but in every country where it is acute.

Perhaps it might have been possible, to tackle another problem, that of a policy applicable to the tropical forest, if, in conformity with the recommendation of the Third Congress F.A.O. had been able to organize an international conference on tropical forestry. Owing to circumstances beyond its control F.A.O. could not give effect to this recommendation, but the present Congress at the request of the F.A.O. Conference, has included a special Section on tropical forestry, and it is hoped that, with the preparation made for that Section's deliberations, the Congress will be able to reach conclusions that will facilitate in this case also the definition of special principles.

Economic problems—Once the principles have been laid down, it is relatively easy for each country, provided it

has competent technicians, to apply them. Their action can also be co-ordinated through the relevant Regional Forestry Commission.

But there still remains to be determined at what rate and under which form they shall be applied.

The question is easily solved when the policy to be followed is mainly one of protection. In this case rapidity of action ought to be limited only by investment capital or availability of man-power.

The problem is different when the policy of forest utilisation, regeneration and silvicultural improvements of all kinds is essentially a production policy. It is not difficult to see what timber requirements in general are destined to increase. But with what rapidity, what exactly will be the type of timber requirements, what species will be particularly needed, what diameter classes, what industries will need to be specially supplied? The reply to these questions will indicate the direction and the rapidity with which efforts should be made.

The answer, however, is made more difficult because wood has multiple uses, many of which cannot easily be estimated in figures. Even within a given country, it is therefore not easy to distinguish the characteristic features of the present timber economy. It is difficult to say what the short-term and especially the long-term trends are for wood consumption. And it is even more difficult to ascertain such trends at the regional level, though they must be ascertained if forest policies are to be co-ordinated at this level.

It was to enable the countries concerned to realise the probable expansion of needs and the urgency and importance of the measures to be taken to meet them that F.A.O., in close co-operation with the Timber Committee of the Economic Commission for Europe made in 1950 a comprehensive survey of European Timber Trends and Prospects. The findings of this important study enabled European countries to define more clearly, at regional level, what their forest policies in this widest sense, should be for the coming years.

This kind of action can promote the definition of national and regional forest policies, and I do not need to stress the desirability of undertaking similar studies in other regions, despite the much greater difficulties involved and even though the results might not be so detailed

for the time being. Nor do I need to say that the problems I have set out here are closely linked to the general theme of this Congress, the place the forest should hold in the economy of the countries may be defined here in a general way, due account being taken of the forest's protective role, its productive capacity, and the efficiency of wood-using industries. But for each country in particular and for regions in general, its importance will largely depend on the outcome of analyses similar to those which have been made for Europe.

World Forest Inventory—It was possible to place before the Third World Forestry Congress, the results of the first forest inventory taken by F.A.O., and by a happy coincidence, the general results of F.A.O.'s most recent World Forest Inventory have been published just before the opening of this meeting. Its perusal enables one to realise, to some extent and in broad outline, the progress achieved over the past five years.

This progress is, in the first place, marked by the number of countries which have either directly or indirectly been able to supply F.A.O. with the information required to draw up the inventory. You will see from the article which the special issue of 'Unasylva' has devoted to this subject, that 109 countries replied to the F.A.O. questionnaires, while 71 others were able to supply official statistics, so that in regard at least to some of its aspects, the 1953 world inventory covers practically the whole of the forests of the world.

What does this result signify? Obviously, one must not have any illusions, or imagine that during the past five years the forest resources which each nation has at its disposal have been the subject of an inventory sufficiently accurate to enable the countries concerned to use it as the basis for formulating a detailed forest policy. This is obviously not the case. Nevertheless, this result shows two very encouraging developments. The first is that Governments have realised that the forest and its products have a part to play to the expansion of their economy and that it is therefore of advantage to have some estimate, very approximate though it might be, of the importance of the resources of their country. The second is that these Governments were able to dispose of the necessary specialised personnel to answer the F.A.O. questionnaire and to compile the necessary forestry statistics. In other words, all of them appear to have at least a nucleus of personnel capable of forming a Forest Service.

On this second point, we hope it will be possible to obtain more precise details. Just as the first World forest inventory, carried out by F.A.O., was accompanied by a questionnaire on the number of forest technicians on whom the world can count in order to carry out the vast work of forest development and protection which it still has to accomplish, so also the new inventory will shortly be followed by an enquiry of the same kind.

Without enlarging on the actual results of the new world forestry inventory, I should however like to draw the attention of the Congress to some of the points which seem to me particularly important.

Forests "in use" and forests "under management"—Some of the figures of this inventory are particularly worthy of the attention of a Congress convened to discuss the place of the forest in national economics.

The most striking, perhaps, is the small proportion of forests in use in relation to the total forest area. Of the 3,915 million hectares to which the name of forest is applied, considerably less than a third are effectively utilised by man. I realise that this low figure can be partially explained in a number of ways: but it seems important to me to point out that the word "forests" evidently covers forms of vegetation which are not really comparable, whether from the physical or from the economic point of view.

Although the available information on forests under management covers only 45% of forests "in use", the proportion of 35% covered by management plans may undoubtedly be considered a maximum, if it is applied to the whole of these forests. Here again some reservations would need to be made on the interpretation by various countries of the meaning of "managed forests".

From the comparison of these two figures it appears, therefore, that out of 3,915 million hectares only, or less than 10%, are provided with effective protection while contributing in a permanent manner, on the basis of rational policies embodying the idea of sustained yield, to the timber needs of mankind.

Endless arguments could be raised concerning the figures I have, just quoted. The vast reserve formed by forests which are still inaccessible and by those which, although accessible, are not yet utilised, may seem, at first sight, reassuring for the supply of the future timber needs

of a rapidly and continuously growing world population.

In yielding too easily to this illusion, however, one tends to overlook the fact that, in a good many cases, the inaccessibility of these forests for exploitation purposes or the absence of utilisation of their products does not necessarily protect them against destruction or against a more or less rapid deterioration. One might forget that some of these inaccessible or unused forests are reserves of soil for agriculture, to which, in many cases, they will have to give way as a result of the expansion of human colonisation, as they have done not such a long time ago, in North America and in New Zealand. One might omit to recall that the proportion of the forested area for the whole world is only slightly more than the proportion existing in Europe (which is 28%), and where the social, economic and physical conditions are relatively favourable to the defence of the soils against erosion and to the maintenance of a stable water supply.

If it is desired not only to meet the present needs, but also to cope with the increase in those needs resulting from the numerical increase of the world population and from the desirable improvement of its living standard, the forest reserves appear more limited, we must ensure that these reserves are not only put to use, but are also protected and improved.

The small proportion of forests "in use" and the even much smaller proportion of forests "under management" poses a major problem for foresters and for technicians and timber firms. The figure itself shows the immense task which they still have to accomplish—which indeed they must accomplish if we wish the vast areas for which they are responsible and which today contribute little or nothing to the well-being of mankind, to be finally incorporated in national and world economies.

The Multilingual Dictionary—In reporting on the results of the world forestry I repeatedly called your attention to the fact, that, despite all efforts made in this respect, the results are still somewhat inaccurate, the lack of precision being due to the wording of the questionnaire on which the inventory was based and to the different meanings attributed in each country to the terms used.

This is undoubtedly a factor which, at the international level, retards the advance of forestry. The Third World Forestry Congress realised this and earnestly recommended that F.A.O. should compile a *Multilingual*

Forestry Dictionary. While willingly accepting this proposal and promising that our Division would give it all necessary attention, I stressed, with the full approval of the panel which examined this question, that a dictionary of this kind would only be really useful if it were accompanied—at least for the key words—by definitions approved by all the technicians concerned.

It so happens that another international agency, much more concerned than ourselves in compiling multilingual scientific or technical dictionaries—I refer to UNESCO—supports this view. It has furthermore laid down precise rules for the compilation of such dictionaries, to which it is most desirable that foresters should conform since their techniques depend so closely on the several basic sciences. The first of these rules is that the compilation of any multilingual dictionary must be preceded by a terminology, that is to say, a glossary with generally approved definitions in two or three basic languages.

On this subject, unfortunately, I cannot report very spectacular progress to the Congress. And yet the need for forest terminologies and dictionaries was most apparent at the time of the Near East Forestry Conference in December, 1952, when the Arabic-speaking delegates pointed out that the training of local personnel and the development of forestry publicity among the people were hampered by the difficulty that there were no words in the language suitable for expressing most of the ideas that all technicians consider essential. They particularly requested the aid of F.A.O. in this respect and this is partly the reason which induced the Division to undertake such an important task without further delay.

Without going into details, I shall merely say that there now exists a document which would make it possible, in two basic languages, namely English and French, to discuss the definition of approximately a thousand key words relating to silviculture proper and apt to serve as a nucleus for the basic glossary I spoke about just now, and consequently for the multilingual dictionary.

How are the necessary discussions on these definitions to be started now? How is this work to be followed up? These questions were still in abeyance when this report was drawn up. F.A.O. counts, especially in this field, on maintaining with the International Union of Forestry Research Organisations a co-operation which has already

given profitable results in the allied field of bibliographical classification. It would also like to co-ordinate the efforts that are being made on this subject in regard to several languages, in particular, Spanish, Greek and Hebrew.

The present Congress might be a favourable occasion for all technicians interested in the subject to exchange views on how the action I have described and which is still in its initial stages of development, should be followed up, and on ways and means to carry it through.

Conclusion—I told you, that I would give you an account of the progress achieved since the Third World Forestry Congress. As a matter of fact, I have only gone over the more important achievements, keeping to the very general fields of research, forest policy and economy.

If the recommendations of the Third Congress are taken singly, however, it can easily be seen that there is not one in which the progress has not been made. Sometimes the progress has been at world and sometimes at regional level, and sometimes only in specific countries.

In this last case I think that the importance now attached to Technical Assistance should be stressed. Until recent years, international action aimed at spreading a sound conception of forestry had only limited means at its disposal. Existing forestry schools welcomed foreign students, and meetings of experts, international technicians' unions and congresses such as the present one could make recommendations, but no means existed for bringing them to the direct notice of the Government concerned. Since the setting up of F.A.O., the international commissions at governmental level and the F.A.O., Conference are empowered to submit formal recommendations direct to the responsible authorities in each member country. But even then, the possibility of direct action aimed at informing interested countries on the techniques required to apply these recommendations was still lacking.

This is the gap that Technical Assistance has come to fill. It is through this assistance that I have been able to report progress on nearly all the recommendations passed by the Third World Forestry Congress. Under this project not only are experts in special fields sent to the countries requesting this help, but fellowships are becoming more numerous and informative meetings and study tours are organised.

The F.A.O. Forestry Division has turned such facilities to the fullest possible account. The few figures I shall give you will speak for themselves.

Since the start of Technical Assistance 108 experts have been sent to 41 different countries. The experts now in the field total 34. The fellows who have profited from the facilities offered by Technical Assistance number 84 from 25 countries. Two extensive study tours have been organised, one to the United States on fire control and the other to Australia on Eucalyptus. Training courses for specialists in logging and timber estimation have been organised in Asia. Equipment has been supplied for setting up several laboratories or experimental stations. Particularly important have been the missions organised to enquire into the possibilities of developing the pulp industry. The results obtained by these missions make it possible even now to draw up a programme of work of the greatest importance to the countries which have substantial but as yet little utilised forest resources.

The Programme of Technical Assistance is destined to continue and, I hope, expand still further. The resolutions of this Congress will give us valuable support in determining in what regions and in what fields our efforts should be more especially directed.

While I have tried to indicate some progress, I have not failed, I hope, to point out how small this has been when compared with what remains to be done.

My earnest desire is that future world forestry congresses should act as landmarks at which a back-bearing is taken of the progress made, and indication is given of the directions in which new actions should be undertaken, and further progress realised.

APPENDIX VII

EXTRACT FROM SUMMARY REPORT AND RECOMMENDATIONS OF THE FOURTH WORLD FORESTRY CONGRESS INDIA, 1954.

Section III: "Productive Functions of the Forest"

The Congress recognised that from time immemorial the forest has supplied man with useful goods; fuel for warmth and cooking, and materials for shelter, tools and transport. In recent decades modern science has added to these long established uses a bewildering number of new uses and wood continues to maintain a place of prime importance in world economy.

Today the forests of the world as a whole are believed to be extensive enough to supply goods and services in ample quantity. They are, however, irregularly distributed and often inaccessible, and though wood as a raw material has many advantages, its relatively low value per unit of weight and bulk necessitates that each region and country should make the most of its forest resources. Increase in populations, raising living standards and desirable economic expansion all have to be taken into account.

The measures were reviewed that might be taken to increase the part played by forests in national and world economy and the factors, social, economic and technical that control wood production on a world scale were considered under the following heads:—

(a) Management for timber production and other forest products or lands under various categories of ownerships.

(i) Forest Policy.—Papers dealing with changing markets and related problems of forest management as affected by land ownership, with the classification of forests according to their major functions were discussed and the Congress recommends that:—

1. Changes in economic conditions should be met by the adaptation of the growing stock to the new needs of the market without compromising the biological structure of the forests ;

2. The area which is to be maintained or put under forest cover should be determined by the need for ensuring the welfare and stability of populations and the satisfaction of the timber needs of the country in so far as this is possible;
3. Forest cover should be maintained at all costs on lands whose best capability is permanent forestry.

(ii) **Forest Management.**—The Congress had before it a considerable number of papers dealing with various aspects of silviculture and management, such as the possibilities of tree breeding, an improved method of estimating total volume and increment, the determination of the allowable cut and improvements in thinning. Papers were also discussed describing management based on functional types, classification based on fundamental ecological concepts (on the system of Sukachev), and phases of management as related to productivity.

This Congress recommends that:—

All countries should consider the advisability of placing special emphasis on the following steps affecting forest management:

1. The adoption of sound methods of classifying forest land.
2. The use of superior strains obtained by selective breeding.
3. The draining of water-logged or peaty areas as a preliminary step to forestation.
4. The creation of public consciousness of importance of forestry and the grant of public assistance to small private owners, for example, by furnishing free planting stock.
5. Improvement of thinning practices.
6. The reclamation of degraded and unproductive forest lands and the afforestation of bare, or waste lands, bearing in mind the value of exotics for these operations.

This Congress commends the international action taken so far in facilitating exchange of needs and stocks of promising species and varieties and in the guidance given to planting programmes, and further recommends that:—

FAO call a World Conference on Eucalyptus as an early date with due consideration of the desirability of establishing an International Commission on Eucalyptus along the lines of the existing bodies for chestnut, poplar and teak.

(iii) **Forest Protection.**—The discussion followed broad lines with particular emphasis on protection from fire, diseases and pests, the occurrence and control of which were the subjects of two of the contributed papers. This Congress emphasises the need for careful siting of the species used and for good silvicultural treatment as the best long-term means of reducing pest and disease losses and consequent considerable reduction in productivity.

(b) **Management of forest lands for grazing and their integration with other fodder resources.**

It was recognised that one of the most ancient uses of the forest was for the raising of live-stock. Though this has frequently led to forest deterioration this use is important in producing meat, milk, dairy and other protein-rich products as well as hides, wool, mohair and various by-products. The possible dual use of forest lands, for both fodder and timber with the judicious application of control should result in maximum yield from the forest for community as a whole. The discussion covered the importance of the character of the forest and of silvicultural methods in forage production; the varying effects of various types of grazing animals; the possible improvement of pastures; and the various social and economic factors that have led to decreasing demand for forest grazing in some areas; and the improvement in quality of live-stock and hence the demand for better pasture and reduction of rural populations. It was agreed that there was difficulty in enforcing control of grazing without proper public education, and that a gradual approach was needed in some areas.

In the discussion the great differences that exist between grazing management in temperate and tropical forests were emphasised. In Europe the tendency is to keep the land devoted to grazing separate from that of forests and except in some mountain areas and in parts of the Mediterranean the problem has gradually lost importance. In tropical areas, and particularly in India, there is a great diversity in grazing practices and in opinion as to their effects which differ greatly with the widely varying types of forest. Grazing is generally practised as an economic necessity in most parts of India. Methods of control with varying periods of fallow, rotation and system of fee-levying were also discussed. A number of speakers described the classification of forests in use in regulating grazing practices and the differences in practical on various types of forest. The great need for intensifying professional

action in this field was emphasised. The considerable amount of international action to date, e.g. through FAO seminars, training programmes and grassland surveys to improve grazing management was noted with approval and additional work of this type was urged.

This Congress recommends that more attention be given by interested Governments to:

1. The development of a true 'sylvi-pastoral' plan of management where feasible.
2. The merits and practicability where the problem is acute of confining grazing to specified areas.
3. The possible steps to increase fodder trees and grasses.

(c) Management of forest lands for wildlife:

The importance to wildlife of the proper management of forest lands for the provision of the food and cover essential to its very existence was recognised. These aspects were emphasised in the contributed papers pointing out that knowledge of biology of wildlife forms is basic to planning of proper silvicultural methods affecting it, and to the determination of the carrying capacity, and to the role of supplemental feeding, migrations etc.

This Congress therefore recommends:—

(a) That recognition be accorded to the facts that wildlife is an integral part of the forest complex and its proper treatment and maintenance are important to mankind.

(b) That the concept of wildlife as a forest crop be given adequate recognition. Research is needed for the scientific planning that will provide an adequate basis for proper practice.

(c) That where in tropical areas it is necessary to segregate timber and wildlife production for the protection of crops and man, this may be affected by confining certain animals to especially managed areas.

(d) That where complete protection of certain species of fauna of great economic or scientific value is justified, this may be affected by the framing of suitable game laws and the provision of nature reserves and sanctuaries.

(e) That the introduction of exotic species, though in some instances desirable, should be done with caution and only after full and careful study.

(d) Management of forest lands for recreation:

The utilisation of forest lands for recreation, aside from hunting, is perhaps the newest feature of systematic forest management.

The discussion ranged widely over the manifold aspects of the subject and in conclusion, this Congress recommends:—

(1) The recognition of forest recreation as a basic human need, bearing in mind the great difference in this respect between many temperate and tropical forests, the former permitting widespread use for recreation, the latter of the requiring the development of specific areas for this purpose.

(2) The encouragement of the proper use of forests for recreation by public education and the formulation of satisfactory policies and management methods.

(e) Management of plantations outside the forest in conjunction with agriculture or for special purposes (hedges, railway lands, roadside avenues, plantations of high productivity on agricultural lands, etc).

The importance and management of plantation outside the forest has received growing attention. That such attention is well justified is apparent; not only in the protective value of such plantations but also in the economic value of the wood produced which in some countries sometimes exceeds age-fifty of the total output.

The papers before the Congress give an interesting account of the importance of this aspect of forestry, and of the varying needs and problems arising from the management of such areas for hedges, rail and roadside strips, special plantations on agricultural land and belts to control desert encroachment.

This Congress recommends that:—

1. Due recognition be given to the important role played by plantations outside the forest in producing useful economic benefits as well as in ameliorating local conditions of climate and in protecting soil and water supplies.

2. Such plantations be encouraged particularly in regions and localities where the existing forest is inadequate to meet agricultural or other domestic requirements, due provisions being made for control by forest departments. Such encouragement might well take the form of education and propaganda, including organised tree festivals, and the free issue of suitable planting stock.

APPENDIX VIII

RECOMMENDATIONS OF THE FOURTH WORLD FORESTRY CONGRESS ON THE "TROPICAL FORESTRY".

SECTION V—TROPICAL FORESTRY

I. Methods for facilitating regeneration and increasing production.

A. Methods for improving tropical rain forests.

Foresters of all tropical countries have as their common objectives the enhancement of the economic value of their forests. Tropical forests are as a rule composed of a large number of species, of which only a small number are utilisable. The cost of exploitation is, in consequence, high. Methods of improvement, both natural and artificial, aim at getting greater proportion of valuable exploitable timber.

The primary forests, most easy to treat silviculturally, are those in which a small number of utilisable species constitute a high proportion of the crop and where natural regeneration of these species is abundant or easily obtained.

Young secondary forests seldom contain any species which can be used commercially. Their only interest for the silviculturist is that they are susceptible to the application of systems of artificial regeneration under relatively clear methods. In some old secondary forests one can usually find a number of important light-commanders, which have increased owing to clearings.

Under the varying conditions encountered it is impossible to select a single silvicultural system which could be safely used in order to ensure the desired development of the forest.

Current techniques, whose details vary according to local conditions, fall in three main groups:—

1. The old stand is removed in periods varying from one to five years and is replaced by a more or less even-aged crop recruited from advance growth or from induced natural regeneration. Variations of this method have been tried in Malaya, Nigeria, the Andaman Islands and Ceylon.

2. Regeneration is induced by selection fellings.

3. The stand is enriched by the artificial introduction of valuable species.

In spite of the different methods employed, certain problems of common interest remain and were frequently refer to in the course of the discussions.

One of the greatest difficulties of the silviculturist is to decide what amount of light is required to permit of the establishment of already existing seedlings whilst at the same time keeping in check the growth of climbers and undesirable species.

The felling of the merchantable trees in one or more operations will remove a more or less important proportion of the overwood, but there will always remain some useless trees which must be got rid of.

The use of contact arboricides (e.g. Finopal by Uganda) can greatly assist the work of the forester in this field. The method is much cheaper than poison—girdling with sodium arsenite and the results are silviculturally better.

It is of course essential that the silviculturist must be familiar with the composition of the crop which he has to deal with in all its different stages.

The cost of silvicultural treatment is also a matter which the forester must not lose sight of. The poor revenue yielded by many tropical forests places a limit on the extent of the operations which the rules of good silviculture demand. Industrial developments are likely to make use of more of the produce of silvicultural operations, and as, plup, fibre-boards, hydrolysis and distillation and so to reduce net costs.

Keeping in view continued research into methods for increasing the economic value of the tropical rain forests, it was considered unwise to leave untouched and unproductive those forests which are being reserved by Governments or by communities with a view to their forming a permanent forest estate. As far as their accessibility permits, these forests should be managed from the time of their reservation so that they may be brought into such a condition that they will be able to produce their maximum yield when the time comes to exploit them.

The silviculture of the tropical rain forests is still for the most part of an experimental nature. It has benefited little from the local traditional practices of the temperate regions, and operations which are being carried out extensively in important regions are still of recent origin.

All delegates emphasised the need for intensifying research, particularly into ecological conditions, the floristic composition of the forest, the silvicultural characteristics of species, the treatment of stands, and finally regarding the modifications brought about in the environment by various forms of silvicultural treatment.

It appears from these considerations that the silviculture of tropical rain forests involves delicate techniques which will require patient research.

It was clear that in some of these methods which appeared promising, the experience acquired so far was insufficient for definite conclusions to be drawn either from an economic or technical point of view. Moreover, in the various experiments comparability has not always been ensured during establishment and maintenance.

It, therefore, seems necessary to systematize the procedures to be adopted for each of the silvicultural methods.

This Congress recommends that the F.A.O. should establish in consultation with IUFRO and in close collaboration with research centres and Forests Services, a procedure for the collation of information and for the studies and controls required for experiments in silvicultural methods aiming at the improvement of forest stands. Such a project which along can yield comparable, a reliable data will require in particular for each experiment:

1. a record of the ecological conditions of the original stand and a qualitative and quantitative check for comparability of treated and control plots;
2. a record of the development of these plots by accurate periodical inventories;
3. a record of the cost of the methods used.

For the greater standardisation for these studies, it is recommended that research stations simultaneously undertake special silvicultural studies on each of the principal species of the stand under consideration, and annex the resultant data to the reports on the methods used.

Numerous delegates stressed the need for exchange of information specially at the regional level.

A wish was also expressed for the organisation of study tours in selected countries for specialists in the silviculture of tropical rain forests. It was recognised that

delegates would have to approach their own governments to endorse such recommendations and to present them for inclusion in the Technical Assistance Programme of the United Nations. This Congress requests the F.A.O. to consider the possibilities of such a project.

B. The Silviculture of gregarious type.

Silviculture in forests of broad leaved gregarious species presents certain particular aspects and sets a number of special problems. The Commission examined a few of the principal types; teak, bamboo, mangrove, sal and some tropical conifers.

For each of these species the discussion covered growth conditions, methods of regeneration and the silvicultural treatment to be adopted for improving and increasing production.

It was suggested that research work in these fields should concentrate principally on the following points:—

Forest ecology :

The Silviculture and protecting of stands.

The ecology of the economically important species and communities with a view to determining the most favourable environmental conditions; studies of fruiting and germination;

Methods of treatment, e.g. thinning techniques, reservation of seed bearers, control of competing species, felling intensity and working schedules. Effect of fire and grazing. Protection against insect and fungi.

Mensuration.

The preparation of up-to-date volume and yield tables and collection of growth, where required.

This Congress requests F.A.O. actively to continue the work it has commenced on these types; this will enable the results obtained in the various countries to be amalgamated and serve as their guide to future action both in research and in the development of silviculture.

This Congress also requests that the detailed programme of research drawn up by the Commission be published at the end of the series of general and special reports presented for discussion on this subject.

(C) Technique of artificial regeneration and formation of plantations.

The Committee considered the problem of artificial regeneration and plantations, in accordance with the relevant objectives and special problems. The partial or total failure of natural regeneration in certain cases, the small economic value or ecological instability of natural associations which precludes any attempt at intensive exploitation, the need to satisfy certain local and industrial requirements which demand a greater supply or a special quality of products, and finally the need for protective reforestation, have obliged silviculturists to turn to the problem of artificial regeneration in general and in particular to stand improvement and creation of plantations. The matters regarding which the delegates were mainly concerned were as follows:—

- (i) The need for economic practices and methods.
- (ii) Soil conservation and the maintenance of soil productivity.
- (iii) The allocation water for plantation where water supplies are available for land reclamation.
- (iv) A yield which is regular, sustained and as great as possible.

Methods of establishing plantations under various conditions were discussed at length region by region.

Delegates stressed the point that, particularly in humid regions, the cost of clearing an unmerchantable stand for planting was often prohibitive, but that the problem could be solved in various ways, such as the *taungya* method, which could also help to mitigate local shortages of agricultural land. Methods of planting or sowing in partial clearances were also described. For the Savannah tracts of the Belgian Congo, a system of planting by spaced groups was recommended.

The need for developing techniques to ensure the maintenance of soil fertility, to increase the absorption of rainfall by the soil and control weeds was discussed. Reference was made to the planting of understoreyed species, particularly bamboos in teak plantations, and to the advantages accruing from interplanting a leguminous understorey in teak plantations.

Discussion on plantations in arid zones brought out two problems. In the case of irrigated plantations the allocation of water for forestry was often less than the minimum required to secure adequate growth and density:

In unirrigated plantations the problem was to conserve the scanty rainfall and make it available for the plants. Methods of double trenching designed to solve the problem were described.

Many delegates expressed concern at the rising cost involved in raising plantations and in some localities, at the drift of labour away to other employment; the efficiency of labour also sometimes left much to be desired. These problems were discussed at length. Rising wages were the chief factor in putting up costs. It was agreed that while fair wages must be paid, it was up to foresters to see that labour was adequately trained to attain a commensurate degree of efficiency; this would in itself reduce costs both directly and indirectly. Welfare measures adopted in forest settlement were also discussed. Among the technical measures considered to reduce costs were rational mechanisation, large-scale operations, the industrial production of seedlings in nurseries and also, wherever possible, the introduction of annual cash crops in forest plantations.

It was concluded that so far as production plantations are concerned, the silvicultural techniques to be adopted would have largely to be guided by the economic factor so that accurate costing for each operation was most desirable.

Reforestation with exotic species has come to be of considerable interest in many tropical countries. Eucalyptus has often proved a more rapid producer of timber than indigenous species; coniferous species are of great importance from the industrial and economic standpoint; teak from Asia and Indonesia has also become an important exotic species in Africa and elsewhere during the course of the last forty years. All these exotics present special problems to the silviculturists of the countries in which they have been or may be introduced.

This Congress therefore recommends that F.A.O. submit to interested Governments the proposal to create an International Commission on Pan-Tropical afforestation species on the same lines as the International Poplar Commission. The Commission would assume the responsibility for the collection and dissemination of information in its field. It would also ensure the facilities and guarantees necessary for the purchase, exchange and introduction of seed and seedlings of exotic species, whether for experimental work or for operations on a large scale.

The Congress commends the F.A.O.'s action for facilitating the exchange of seed and for the publication of the Seed Catalogue; it requests that its work on the Planning Manual be actively pursued. It notes with satisfaction the action taken by IUFRO to simplify the procurement of eucalyptus seed for experimental work.

II. Desert Control and Arid Zone Forestry

The problem of desert control is of great importance to all the continents and to numerous countries. The assistance of foresters is frequently called for in the fight against the spread of the desert conditions and in the utilisation of regions on the margin of deserts. Under absolute desert conditions the forester cannot do anything and the Committee has limited its studies to zones believed to be capable of supporting useful vegetable although receiving a rainfall below 500 millimeters (20 inches).

Numerous delegates have demonstrated the importance of the action of man, and specially of his cattle, on the spread of desert conditions. The application of simple administrative regulations will not stop this spread. Before embarking on any radical measures, it is necessary to try to improve conditions in the pre-desert zones so that the people and their cattle can live without causing any damage. This entails pasture improvement, recreation of forests and the revision of agricultural policies. No such programme can be undertaken in any country unless it be based on the results of thorough research and study, for in this field even minor set-backs may have serious consequences.

Valuable studies have been carried out in many countries. Their results should be placed at the disposal of all concerned. Countries should exchange technical information and facilitate the exchange of seeds and plants adapted to the special conditions obtaining in arid and semi-arid and sub-desert regions.

One country should be able to obtain from another where conditions are similar, both technical assistance and advice. This object could be attained by the pooling of experience in the field of desert control and arid zone improvement.

This Congress recommends that F.A.O. submit to all interested Governments the proposal that an international commission be created on the Control of Deserts and on

Forestry in Arid Zones. The Commission would be made up of groups created within each of the interested countries and the secretariat would be supplied by F.A.O. The Commission would work in close co-operation with the permanent committees on arid zones organised under the sponsorship of the UNESCO, which is specially concerned with centralisation of the basic knowledge necessary for implementing the technical and administrative measures recommended.

This International Commission, which would be on a permanent basis, would be concerned particularly with the following:—

- (1) Species adapted to the various sub-desert conditions and their ecology, techniques of afforestation, etc.
- (2) A study of the legislation needed to implement policy and assist the application of techniques.
- (3) The policies to be adopted and the measures to be taken for their application in the fields of protection, rehabilitation, creation of forests either as blocks or shelter belts, silvi-pasture and the conservation of soil and water.

Information on these matters could be gathered either directly by the member countries concerned or during the course of meetings, conferences, expert missions and study tours made at the request of interested governments.

III. Place of the forest in the utilisation of natural resources.

(a) *Forest policy in tropical rain forests.*

The Secretariat of the Forestry Division of the FAO, desiring to take advantage of the Fourth World Forestry Congress, requested that certain questions be raised and the problem of the policy to be adopted for tropical rain forests was, in particular, discussed.

The forester's main objective has hitherto been the development of his forest in order to obtain a crop which, though still heterogenous, was of greater value from the economic point of view. The emphasis laid on the ecological factors during the course of the discussions demonstrated the importance that foresters attached to gradual progression towards the desired form. From an industrial and economic point of view, the accepted principle was one of seeking as the maximum utilization possible of the produce of the forest.

During the course of the last few years, a new tendency has appeared. Several factors have led foresters and economists to consider new problems of tropical forestry. These factors are: the difficulties of the silvicultural treatment of rain forests; cost of operations; certain technical and especially economic failures in the industrial treatment of the produce of these forests; changing trends in special demands (pulp and paper and especially newspaper).

It is generally admitted that these forests are in the present circumstances difficult of economic exploitation and that their chances of satisfactory development are precarious and distant. Some experts have consequently come to the conclusion that it is best to clear the natural forests and to replace it by pine plantations, quick-growing trees capable of producing an abundant supply of raw material, and better adapted to the economic necessities of today. This trend is still new and foresters may find themselves faced with the following difficult choice. Is the tropical forester to continue to concentrate his silvicultural efforts on the management and development of the mixed forest in order to obtain a better economic return, and then expect industry to adapt its techniques to the type of raw material this class of forest will provide? Or must he, on the contrary, seek to adapt forest production to specific industrial needs and to present consumer requirements?

There was considerable debate on this aspect of the forest policy to be adopted in tropical regions, delegates from Australia, Belgian Congo, France, India, Indonesia, Nigeria, Pakistan, Tanganyika and Uganda participating. The primary object of this debate was to elicit existing opinion. The arguments used may be summarised as follows:—

- (i) The need for the maintenance of a stable biological forest environment. The natural forest offers this advantage and its maintenance is ensured by methods based on natural evolutionary trends, where natural development has to be helped by enrichment. There are nevertheless groups for the view that sure plantations of well adapted species will in time progress towards a form of association sufficiently stable to avoid dangers of a biological nature, provided certain precautions are taken. These biological dangers may be serious in the case of pure

plantations of quick growing species managed on a short rotation. This method, in any case, can only be considered when the quality of the soil permits.

- (ii) There was general agreement that the needs must determine the methods to be employed. The problem set therefore varies according to whether the region is densely populated and local needs are therefore high, or whether it is under-populated and there are few local requirements. The permanent supply of local needs must have first priority. Since long-term requirements are difficult to foresee and are liable to vary, it would seem that the rain forest is best adapted to supplying them after they have been finally determined. At all events, it is necessary to give a certain flexibility to production and to choose species which are both high yielding and multi-purpose.
- (iii) The chief disadvantage in rain forest is the present difficulty of full utilisation. Since the maintenance of this type of forest on a long-term basis is advisable, biologically and even economically, it is essential to institute intensive technical, technological and industrial research which will result in the complete rational utilization of its products. At the same time, publicity, commercial organisation and study of economic trends are recommended.

(b) *Inventories of Tropical forests.*

The Committee studied the value of methods of aerial survey and the conditions under which they could be used for tropical forest inventories; it also studied methods and techniques of sampling, enumeration and mensuration during the course of ground surveys.

It also gave some attention to the combined and rational use of these two methods.

The delegates agreed that aerial surveys could, in tropical regions, economically provide valuable information, both general and detailed regarding topographical features and the distribution types of vegetation. Such inventories are therefore of immediate value in the development of policy for forest protection and in assisting in the preparation of exploitation projects and working plans.

Further details can be obtained during the aerial survey of tropical regions by taking advantage of the seasonal differences in the cover (the colour of leaves and flowers); also by establishing Crown—Height—Diameter relationships of the trees, and by employing infra-red photography.

Aerial photography is costly, and so it is necessary to include forest inventory operations plans for a general inventory of resources. In such general inventories the special requirements of foresters would have to be met.

In addition to aerial photographs the forester requires ground surveys for his management plans. Ground surveys are both costly and time consuming.

The Congress recommends that—

- (1) forest inventories be limited to areas of productive forest.
- (2) statistical procedures should be applied as far as necessary to ensure sufficient accuracy in estimates at minimum cost. The density of sampling will depend on the cost of the method used and the objects of the inventory.
- (3) since the number of experts in aerial inventory and forest survey still falls far short of requirements. Governments should be urged to send technicians to specialised schools, and on International Centre or a number of regional centres for co-ordinating research on aerial surveys in tropical regions should be created.

(c) *Shifting cultivation.*

The conditions under which shifting cultivation occurs in the tropics, the dangers it presents and the remedies which are recommended were examined. It appeared that in the first place there should be a distinction between shifting cultivation on forest soils, which could easily be regenerated in the moist tropical zone, and on those where it is practised in dry zones or in mountain regions, where it is infinitely more dangerous in view of the instability of the soils and the difficulties of their regeneration. The two cases are closely inter-related, since one of the remedies frequently used for suppressing the practice in mountainous regions consists in seeking to resettle the cultivators in the plains.

Remedial measures may be classified in several broad categories. From the agriculture standpoint, the change to a permanent form of cultivation by stabilising or resettling the people in colonisation areas may be resorted to. Such a policy presents certain difficulties and may be costly; and the improvement of the available land and the application of certain improved methods of dry farming or terracing must be envisaged. In certain cases, the concentration or control of shifting cultivation and the technical improvement of the fallow period may suffice.

From the forestry standpoint, shifting cultivation may, in the first place, be controlled by the adoption of the *taungya* system. But where protective forests are concerned, the only policy is one of strictly prohibiting all cultivation within the forest. With this end in view Governments are particularly recommended to forbid the cultivation of hill rice which is especially destructive in the areas of protective forests. And within the framework of a rational utilization of soil, the forester must determine the location and minimum area of forest to be completely protected and those which may be open to controlled shifting cultivation.

On the economic plan, nomadic people who living from day to day, are responsible for the destruction of the forest, should be integrated to a sounder and less destructive economy by encouraging the use of alternative permanent crops (including cash crops) and the importation of food stuffs. Everything must be done on the social plan to enable these people to adapt themselves easily to the new conditions of life imposed upon them.

In conclusion, it was found that problems of shifting cultivation, although of direct moment to the forester, are not his responsibility alone. They must be solved in a great measure not only by agriculturists but also by a well integrated team of other technicians and administrators. The Congress, therefore, considered that the main problems of utilization and conservation of soils, directly affected by shifting cultivation, must first of all be the object of a co-ordinated plan at national level.

In view of the importance of these problems and the interest that the forester has in them, the Congress recommends that F.A.O. actively continue its enquiry on the subject at national, regional and international levels. It also recommends that interested Governments when framing programmes of Technical Assistance should take any measures necessary to further this enquiry. The creation

of an International Commission should also be considered as soon as general studies and the establishment of national organization allow.

The Congress gave special attention to the question of the use of statistical methods in forest research in tropical regions. From papers presented and from the discussion it was very evident that they should be much more widely used and that the competent authority should give them the high priority in their programme that they deserve.

The Congress believes that the time is not ripe, except in countries possessing large forest research centres, for encouraging the creation in them of a special section for statistical research. It considers that in view of the present stage of organization in most countries, it is necessary to recommend that training in statistics is important for the majority of research workers. It would, however, be helpful if I.U.F.R.O. would set up such a section.

This Congress reiterates the need for establishing norms and rules of procedure which will complete in the realm of tropical forest research the series of norms already established by the International Union of Forest Research Organizations, which at present only refer to temperate zones.

APPENDIX IX

SPEECH BY DR. P. S. DESHMUKH, UNION MINISTER OF AGRICULTURE AT THE OPENING CEREMONY OF THE ALL INDIA, FORESTRY EXHIBITION, ON 12TH DECEMBER, 1954.

The idea of holding a forestry exhibition in conjunction with the Fourth World Forestry Congress was first suggested by the F.A.O. At that stage the proposal was to exhibit machinery, tools and implements manufactured for use in forestry operations in various countries of the world. This seemed an attractive idea but closer examination soon showed that the work of organising such an exhibition involving, as it would have done, import of heavy equipment and its clearance through the customs and so forth, would have cost an unduly heavy burden on the staff charged with the already heavy task of organising the Congress itself. It was, therefore, decided to adopt the proposal to hold an exhibition but to limit its scope to India, with the object of displaying graphically the forest resources of the States of India and exhibiting various products as well as the arts and crafts based on forest products in Indian States.

2. The question of finding covered space for accommodating the exhibits immediately arose. It was decided to construct special buildings for the purpose and to design and build them in such a way that they would themselves be exhibits and constitute a demonstration of modern techniques of assembling small size timbers for making trusses of large spans. These decisions were taken as late as April of this year. As the buildings were to be ready by the middle of November and as the period available for active construction would be reduced by rainy months of July and August the usual formalities were dispensed with and the work of construction was entrusted to the Forest Research Institute as a special case on a high priority basis. The designing and construction of these two buildings that we see before us were undertaken by the Timber Engineering Branch of the Forest Research Institute with the full co-operation of the Service Branch and of the Composite Wood Branch of the Institute. The special feature of the exhibition buildings is that small dimensioned timber pieces have been put together with the aid of wire nails for building up large trusses. From the fact that these two buildings have been constructed in a period of five months or so and at a cost of about Rs. 97,000,

it seems clear that this type of design leads to economy of time, material and money. These buildings are not temporary constructions put up for the occasion but are intended to last as permanent buildings. I understand that a separate brochure is being issued during the exhibition explaining the technical engineering features of the construction and giving full details of design and cost. This would probably be of interest and use to foresters and engineers as well as to members of the public. A notable feature of the interior of the halls is the use of specially prepared bamboo boards, ceiling boards and sawdust boards for various purposes such as walls, ceilings, partitions and furniture. These boards have all been developed at the Composite Wood Branch of the Institute.

3. A large number of States have taken separate stalls in the exhibition to display effectively their forest resources and the industries based on those resources. I feel sure that they will give the delegates to the Congress, specially those from abroad, some idea of the range and variety of the forest products obtainable from India's forests. I must take this opportunity of thanking the State Governments for their co-operation in organising this exhibition in spite of the short notice given to them.

4. As the delegates may know, there are several permanent museums in the Forest Research Institute which give a comprehensive picture of the forest wealth of India. This exhibition is not intended to duplicate the exhibits in the permanent museums, but rather to give an idea of the dynamic development of forestry and forest utilisation taking place in the States. As the delegates enter these halls, they will see a wide array of articles for sale displayed. It has been decided that sale should start after a few days so as to enable visitors to the exhibition to view all the articles before deciding what they would like to buy and take home as souvenirs or as gifts to their friends and families.

5. A feature of the exhibition is the stall reserved for displaying forestry posters received from various countries. I am sure delegates will find these posters interesting and suggestive of new ideas for publicity and propaganda work in promoting forestry in their own countries.

6. I should like to congratulate the Forest Research Institute on the efficient manner in which it has designed and erected these interesting Exhibition buildings.

7. I have now great pleasure to declaring this exhibition open.

APPENDIX X

PRESIDENT'S SPEECH AT THE SILVER JUBILEE EXHIBITION OF THE INDIAN COUNCIL OF AGRICULTURAL RESEARCH IN NEW DELHI ON DECEMBER 14, 1954.

I consider it a privilege to have been asked to open this Exhibition organised by the Indian Council of Agricultural Research in commemoration of its Silver Jubilee. Apart from the fact that I have been the Council's President for about two years in the past and therefore feel somewhat attached to it, its work and achievements are of the utmost importance on their own merit. India is primarily an agricultural country. Agriculture and allied callings provide occupation to about 70 per cent of our people. The improvement of agriculture in the widest sense,—the task with which your Council is charged—is, therefore, the only way of bringing joy and happiness to the masses of this country.

Since its establishment in 1929 as a result of the recommendation of the Royal Commission on Agriculture, the history and steady growth of the Indian Council of Agricultural Research epitomise the general improvement in Indian agriculture. Although Indians are one of the oldest nations devoted to farming and agriculture, and the knowledge and experience gained through centuries in actual practical agriculture in all kinds of soil, climate and season are even in these days of scientific development not to be despised, modern requirements call for improvement in old methods if cultivation of land has to be a profitable occupation and if it is to serve the needs of a growing population. Having as I do some knowledge of our villagers and cultivators and the conditions prevailing there, I make bold to say that our practices and past experience form a solid basis for application of scientific research and scientific methods and I have no doubt the scientists working under the auspices of the Indian Council of Agricultural Research have not hesitated to utilise such experience to the full in search for improved methods, instruments and other requirements of our agriculture. The need for research and improvement is obvious not only to enable us to keep pace with our growing demand and to meet on equal terms competition with other countries but also—and indeed more so, to keep the wolf of hunger away from our door.

We have known the pinch of shortage of foodgrains in recent years. It may not have been due entirely to defi-

ciencies in our agriculture, but the broad fact of shortage had to be faced and grappled with by the nation. If we have tided over the crisis and cleared the way for achieving self-sufficiency, your Council could legitimately claim some credit for it. Its useful research and dissemination of their results for practical application by tillers of the soil, were an important factor in our war on the food front. On this occasion, I would also like to pay my tribute to the late Shri Rafi Ahmed Kidwai who by his administrative ability and indefatigable efforts carried the work of not only this Council but of all the wings of the Food and Agriculture Ministry to the happy consummation of self-sufficiency in respect of foodgrains.

Scientific research with a view to improving agriculture and increasing production is undoubtedly our primary need, but mere research, howsoever original or full of potential benefit it may be, cannot advance the work of agriculture unless we can manage to take it to the farm of the cultivator. Assimilation by him of the results of researches, so that they are taken advantage of in actual day-to-day operations, is of the utmost importance. There is a general belief among some people that our agriculturists are extremely conservative and cannot easily be induced to change their habits and practices. I am sure your experience will coincide with mine that such conservatism as exists among them is based on reason. We know that the Indian agriculturist has not hesitated to adopt new varieties of sugarcane and wheat and the very recent experience regarding the Japanese method of paddy cultivation shows that all he needs is to be convinced about the superiority of the new variety or method to adopt it.

I am glad that realising this fact, your Council has organised an agricultural information service in order to communicate to the farmer as quickly as possible the various results of research. Efforts are being made, I understand, of maintaining close contact with village level workers. I know this is an uphill task in our country because a large majority of the cultivators are illiterate. In order to explain things to them a suitable medium has to be evolved as a substitute for the written word.

I shall next refer to agricultural education and the extension programme taken up by the Council. Both of these activities are, in a way, allied to the dissemination of information necessary for effecting the desired improvement in agriculture. Nevertheless these two functions are of such fundamental importance that they can well be

treated as separate items of the Council's work. I am glad it has actually done so and made some progress in giving agricultural bias to education in rural areas and also to popularise the extension programme. I take it, it is because of this bias that elementary agriculture is now finding a place in the curriculum of school in several States. As for the extension programme, its importance and magnitude have been recognised by Government, who has since set up a separate administration to tackle it, namely, the Community Project Administration.

The Indian Council of Agricultural Research, which is thus working in four separate but closely knit wings, namely, research, extension, agricultural education and agricultural information, has done yeoman's service to Indian Agriculture. As Shri Ajit Prasad Jain has said there is hardly a branch of agriculture and animal husbandry which has not benefited from its work in the laboratory and outside it. It is my conviction that agriculture is that branch of human activity in this country which affects the largest number of people and any improvement in it is bound to make for the joy and happiness of our masses. Since your Council deals with this subject of vital importance, it is clear that it shoulders a heavy responsibility. I am sure your many workers have full realisation of this fact and feel a sense of pride in having been called upon to give their best in the service of a cause which has such vital bearing on the prosperity and well-being of the Nation.

This Exhibition, I am sure, will offer to the public the much-needed education on the importance of agriculture and animal husbandry in the lives of the Indian people. You have taken pains to explain the working of the Indian Council of Agricultural Research, its problems and the results so far achieved by it in simple language so that the Exhibition interests the lay visitor as much as the scientist. I hope arrangements will also be made to carry this Exhibition in some form to our rural areas and the various exhibits explained to the villagers. It should be of great practical value and besides being instructive should also prove a source of recreation to them.

Before declaring this Exhibition open, let me congratulate the Indian Council of Agricultural Research on completing 25 years of its useful activity and service to the Nation. I fervently hope that it will continue to grow from strength to strength and come to be recognised not only as the spearhead of scientific and modern agriculture but also as the guide and friend of the agriculturist.

APPENDIX XI

WELCOME SPEECH OF SHRI K. R. DAMLE, I.C.S., VICE-PRESIDENT, I.C.A.R., ON THE OPENING OF SILVER JUBILEE EXHIBITION OF I.C.A.R.

MR. PRESIDENT, LADIES AND GENTLEMEN:

Today is a Red Letter Day in the history of the Indian Council of Agricultural Research and it is my proud privilege to welcome on behalf of the Indian Council of Agricultural Research the President of the Republic of India who has graciously agreed to find time this evening to open the Exhibition which has been organised by the Indian Council of Agricultural Research to celebrate its Silver Jubilee. The State Governments who have shared in the research programme of the Council and contributed significantly to its success have honoured us by sending their research workers to attend this function. We are also grateful for the presence of the State Ministers of Agriculture on this occasion. This Council was established in 1929 and has already completed 25 years of service to the country. Its resources in the beginning were small. Its establishment was looked upon with a certain degree of suspicion as it tended to encroach upon the autonomy of the Provincial Governments to whom the administration of agriculture had been transferred as a result of the 1919 Reforms. The Council however was established in order to co-ordinate the agricultural research work in the country and to give guidance and provide necessary initiative in this sphere. During the course of the last 25 years the Council has amply justified the hopes with which it had been founded.

Initially the income of the Council was derived from grants made available by the Government of India. In later years the financial resources of the Council were put on a firm basis by allocating to it the cess derived under the Agricultural Produce Cess Act. This step has helped the Council to extend its activities and it is a matter of pride that the Council has spent more than two crores of rupees on research schemes which have already been concluded and has already committed a sum of 3 crores and 30 lakhs of rupees on 509 current schemes. Some of the research work sponsored by the Council has led to impressive results in the sphere of plant breeding and plant

protection. In the Exhibition which will be declared open soon an attempt is made to indicate the lines of research and some of the outstanding results. In the success of the efforts made by the Council in organising research the Council has had the good fortune of having the spontaneous co-operation of the State Governments, who made their research stations and staff available for the carrying out of the schemes recommended by the Council. On this occasion it is but proper that the Council should express its thanks to all the partners in the common endeavour. The Council's slogan is 'Better Living Through Research' and it is a happy thought that the results of research done under the auspices of the Council are now being propagated to the farmers through the agency of the National Extension Service. This translation of the results of research to the actual tiller of the soil will lead him to live a better life. The Council has organised a section for agricultural information and publicity as a part of its activities with this end in view.

We are fortunate that our distinguished guest of the evening has himself been a former President of the Council and has had occasion to guide and appreciate the work done by it. His presence at this function is a source of great encouragement to the members and officers of the Council which, though proud of what has been done by it so far, will not rest on its past laurels but try to achieve more and outstanding success in its efforts in future.

APPENDIX XII

ADDRESS OF SHRI AJIT PRASAD JAIN, MINISTER FOR FOOD AND AGRICULTURE AT THE INAUGURATION FUNCTION OF THE INDIAN COUNCIL OF AGRICULTURE RESEARCH SILVER JUBILEE EXHIBITION ON 14TH DECEMBER, 1954.

MR. PRESIDENT AND FRIENDS,

It gives me great pleasure that you have accepted our invitation to be present at this function to commemorate the completion of 25 years of progress in agriculture and animal husbandry research.

2. The importance of agricultural research to a country like India, where agriculture is the premier industry is well recognised. If India's climate were uniform or even nearly-uniform, the task of the agricultural scientist would have been simplified. But India's agriculture calls up the special conundrums, typical of practically every climatic belt on earth. Each climatic belt produces not only its own range of crops and livestock breeds, but with them each its own long range of plant diseases, cattle plagues, insects and pests and even predatory animals to be coped with. It is obvious, therefore, that scientific research in agriculture and animal husbandry in India could not be concentrated in one place. It has to be done in Institutions spread all over the country, working under different patterns of climate and conditions. Nevertheless, co-ordination of the work done in the different research Institutions and Centre-State co-operation are most essential if agricultural research and results therefrom are to be diverted into productive channels. Recognition of this fact led to the setting up of the Indian Council of Agricultural Research in 1929, in order to promote, guide and co-ordinate agriculture and animal husbandry research in the country and to link it with work done in similar Institutions in the foreign countries. Those who have watched with close and sympathetic interest the working of the Council since its inception would confirm that it has fulfilled the hopes and aspirations of those who recommended its establishment, and has helped to strengthen and extend the spirit

of co-operation and mutual help between the Centre and the States in the great task of agricultural development.

3. It can be said with confidence that there is not a single branch in Agriculture or Animal Husbandry where the Council's vitalising influence has not left a mark. Crop production received pride of place in the Council's research programmes. The Council gave great impetus to the improvements of rice by subsidising a chain of rice breeding schemes throughout the country. Almost the entire range of improved rice varieties now in use in the country, with no importation of seeds from abroad, could be attributed to the Council's efforts. The story is the same with regard to wheat, barley, maize, millets, pulses, oilseeds, sugarcane, tobacco and number of other crops.

4. Wheat rust is the greatest menace to the wheat crop. The Council has been financing investigations on the problem for a number of years. Intensive work done more recently has resulted in partial success of considerable importance to all wheat-growing countries. A new variety of wheat—N.P. 809—resistant to all the three types of rust found in India and suitable for growing in the hills has been evolved. This variety is now being tried extensively and efforts are in progress to evolve varieties suitable for cultivation in the plains.

5. Modern veterinary and livestock research in India started at least half a century before the Indian Council of Agricultural Research was established. Some of the pioneering work has been creditably continued on modern lines and further expanded under the auspices of the Council. Disease being one of the chief problems, if not the only problem in animal husbandry, the devising of measures directed towards its elimination of control was one of the first subjects to receive the Council's attention. The Council assisted the States in the appointment of Disease Investigation Officers to study the incidence of disease of animals and to suggest remedial measures. Successful research experiments had been obtained through the Council's schemes with regard to animal diseases in India—such as rinderpest, foot and mouth, bacterial diseases protozoan diseases, and diseases caused by parasitic worms.

In the realm of cattle breeding, most of the scientific work was done through schemes sponsored by the Council. Pilot schemes financed by the Council for the setting up of what is known as "Key Village Scheme" for the

development of cattle and artificial insemination units had produced such useful results that Government have, in its National Plan, included long-term programme of cattle breeding on the lines through which the Council had achieved success.

Sheep breeding, poultry development, improvement of hides and skins, manufacture of serums and vaccines for control of diseases, animal nutrition and dairy research are among other items on which the Council has successfully worked during the past 25 years.

6. The Council is not content with research alone. The weakest link in the chain of agricultural development is the translation into practical application of improved farming methods and techniques evolved as a result of research. Although the field staff of the Agricultural Departments in the States are responsible for such extension work, the Council recognised at an early stage that the extension work should be systematically co-ordinated. In a Resolution adopted by the Council in Dehra Dun in May, 1951, the Council initiated measures for establishing an Extension Service Organisation throughout the country. The Council first appointed an Agricultural Extension Commissioner and set up a Central Board of Extension, and organised pilot development extension projects with foreign assistance. The lead given by the Council has since been followed further by other Departments of the Government and a large number of Community Projects and National Extension Blocks, with necessary trained personnel, have been set up. There are plans to extend this work to the entire country. The responsibility for training the village-level workers, however, continues to rest with the Council which has organised 34 Training Centres and a number of Basic Agricultural Schools, Home Economics Centres and agricultural workshops throughout the country. So far it has trained 5,539 village-level workers and 837 supervisory staff for the Community Project areas. Further measures are under way for strengthening these institutions with a view to increase the output.

7. Similarly, the Council has been interesting itself in the co-ordination of agricultural education which was not looked after by any single Agency. A Council of Agricultural Education now functions as part of the Indian Council of Agricultural Research in which the Universities, to which Agriculture and Animal Husbandry Colleges

are affiliated, are represented. The Council has been taking measures to strengthen the agricultural educational facilities in the country by supplying equipment and farm books. Certain agricultural colleges have been assisted by the Council, with the co-operation of the Ford Foundation, to open regular Extension Wings. In recent years, veterinary education has also received considerable encouragement. To overcome the shortage of trained Veterinarians in the country, the Council has arranged extra teaching facilities in two Colleges to train over 100 additional graduates. Further measures are under consideration to bridge the tremendous gap in this field, by expanding the teaching facilities in existing Institutions, setting up new Institutions; and instituting short-term courses.

8. Another field in which the Council has done pioneer work is "Agricultural Information". Important research findings capable of increasing the food production are often times confined to laboratory files. This is because there has not been a co-ordinating Agency throughout the country to cull out information useful to the farmer and present it in a manner which is readily acceptable. The Council has completely adapted its journals and magazines to be of practical use to the Extension workers and progressive farmers. The Council brings out a number of attractive agricultural information pamphlets and leaflets both in English and Hindi which even the villager could easily understand. The Council is also actively assisting the State Departments of Agriculture with equipment to produce such information literature in local languages. The Council brings out a monthly journal in Hindi entitled "Dharti-ke-lal" which conveys in simple language, using the minimum of words, improved farm practices in a readable and understandable form even by those farmers who have a limited vocabulary. The Council has enlisted the co-operation of rural magazines and newspapers for reproducing in local languages information put out by it.

The Council is embarking today on a new venture of issuing farm bulletins direct to newspapers operating in the rural areas. These bulletins would convey a single improved farm practice based on the results of approved research. The Farm Bulletins would also be sent to all the local Agricultural Officers, so that the farmers who wish to have more information, could obtain it through them. This new attempt, it is hoped, would effect the much desired two-way traffic between the Research worker and the man on the field who has to benefit from the results of research.

The Council is also setting up a Central Agricultural Film Library in order to stock all the useful agricultural films and loan them to the State Governments for exhibition in the rural areas.

As part of the "Agricultural Information" programme, the Council has also taken active part in promoting agricultural campaigns. Recently, the Japanese Paddy Promotion Campaign sponsored by the Council achieved remarkable success and drew international recognition.

9. So far, the Council has spent about Rs. 220 lakhs on research schemes which have been concluded, and a further sum of about Rs. 350 lakhs has been committed by the Council on 509 current agricultural and animal husbandry schemes.

10. The Council will be occupying tomorrow the imposing new building which is seen opposite to this shamiana. It is only in the fitness of things that a Society whose service to the Agricultural Industry is invaluable, should have a permanent home on the occasion of its Silver Jubilee. I must mention that this is due to the foresight and efforts of my able predecessor, late Shri Rafi Ahmed Kidwai whose absence to-day is keenly felt.

11. I am glad to find that many Scientists, Directors of Agriculture and Animal Husbandry from States, research workers from all over the country and others associated with the Council, are assembled here to-day to witness the Silver Jubilee Celebrations of the Council. They could look back with legitimate pride on the long record of useful association with this Council which, I am sure, in the years ahead will play a decisive role in making Indian-agriculture rank along with more advanced countries. I feel that the record of service of the Council, distinguished as it has been in the past, is only a prelude to a further period in which, in the changed constitutional conditions of present day, the Council will render service as valuable as any that it can claim to have performed in the past.

We have arranged a small Agricultural Research Exhibition which, in no way, should be taken as fully illustrative of the various activities of the Council. It is only symbolic of the unique occasion and it is intended mainly to illustrate the theme of better living through research.

We have also produced a film entitled "Our Indian Earth" with the co-operation of the Technical Co-operation Mission, to indicate the progress of Agricultural and

Animal Husbandry Research through Council schemes. This will be shown later in the evening in this pandal, and we hope all of you would stay behind to see it.

Before I request the President of India to inaugurate the Exhibition, and say a few words of encouragement on this historic occasion in the life of the Council, of which he was once the Chairman, I should convey my sincere thanks to all the officers and staff of the Council who have untiringly worked to set up this Exhibition and make other arrangements.

May I now request you Sir, Mr. President to declare this Exhibition open.

APPENDIX. XIII

SPEECH BY DR. PANJABRAO S. DESHMUKH, UNION MINISTER FOR AGRICULTURE, AT THE OPENING SESSION OF THE GOVERNING BODY MEETING OF THE INDIAN COUNCIL OF AGRICULTURAL RESEARCH, ON WEDNESDAY THE 15TH DECEMBER, 1954 AT 11 A.M. IN THE AUDITORIUM OF THE NEW I.C.A.R. BUILDING, QUEEN VICTORIA ROAD, NEW DELHI.

Members of the Governing Body and Friends.

It gives me great pleasure to welcome you all to this meeting of the Governing Body. Before I proceed with the business of the meeting, it is with deep regret that I have to refer to the great loss we have suffered in the death of one of its ablest Presidents—late Shri Rafi Ahmed Kidwai, who was associated with the work of the Council as its President for more than two years. Within that period, the Council made great strides under his leadership. It is no exaggeration to say that his share in the development of the Council's work is a large one. The quality of his work and his enthusiasm for agricultural development, with which he was intimately associated for several years, is well known to all of you. His intimate knowledge of the people, his quick and firm judgment, his ripe experience, and his unique capacity to find an apt solution had combined to make him not only one of the ideal leaders for our country, but also a source of strength to me personally and the Council in particular.

The Council has also to mourn the loss of another of its ex-Presidents, Shri Girja Shankar Bajpai, who passed away a fortnight back. Shri Bajpai, although pre-eminently a Civil Servant, was a man of versatile and distinguished talents. He had played a significant role in bringing into being the Indian Council of Agricultural Research in 1929, when the Royal Commission recommended the setting up of a central agency to coordinate agricultural research on an all-India basis. In his death, therefore, the Council has lost one of the pioneers responsible for ensuring Centre-State co-operation in the field of agriculture and animal husbandry research.

I am sure, the Governing Body would like to adopt resolutions of condolences on the demise of these two great sons of India. I will read out the two resolutions which I have framed, and after I have read them, I hope you will indicate your approval by standing in silence for a minute.

- (1) "Resolved that the Governing Body of the Indian Council of Agricultural Research places on record its deep sense of sorrow on the sad and untimely demise of Shri Rafi Ahmed Kidwai, Minister for Food & Agriculture, who, as President of the Council, guided its affairs with his wise counsel and advice. In him the country lost a great leader and an astute administrator. Resolved further that a copy of the Resolution be forwarded by the Secretary to the Members of the bereaved family."
- (2) "Resolved that the Governing Body of the Indian Council of Agricultural Research places on record its deep sense of sorrow on the sad demise of Shri Girja Shankar Bajpai, an ex-President of the Council, who had played a significant role in the early and formative stages of the Council towards its establishment on sound lines. Further resolved that a copy of this Resolution be forwarded by the Secretary to the Members of the bereaved family."

I now request you to stand in silence for a minute.

2. We may now proceed with the work of the meeting. This meeting is, in more than one way, eventful in the history of the Council. Firstly, we are meeting today on the completion of 25 years of progress on agriculture and animal husbandry research conducted by the Council. You have already participated in the Silver Jubilee Celebrations held yesterday. The Minister of Food & Agriculture had given you a complete review of the past work done, and it is needless for me to add anything more to that review.

Secondly, we are meeting today in the new premises of the Council which has been made available to us with your valuable co-operation. During the last many years, the Council's Secretariat offices have remained scattered over many places, and, if I may say so, the Council had been treated unfairly in the matter of providing adequate accommodation for locating its offices. It is only in the fitness of things, therefore, that after a lapse of 25 years, the

Council can claim to have a permanent home of its own, providing adequate facilities. In the ordinary course of events, it would not have been possible for us to hold this meeting today, to synchronize with the Silver Jubilee of the Council. It was due to the foresight and enterprise of both the Vice-President and the Secretary of the Council, who had taken special pains to get at least two rooms furnished within a record time that we have been able to take symbolic possession of the building today. I must congratulate them and also take this opportunity to thank the various other officials and members of the staff for their untiring efforts in the setting up of the Agricultural Exhibition, which, I am sure, all of you would appreciate. While speaking of the success of the Exhibition I should mention the valuable co-operation of the Technical Co-operation Mission and our Publicity Adviser, Mr. Malcom J. Orchard, Shri Oza, the Editors of the Council, U.S.I.S. Officers, representatives of the various other departments and the staff of the I.C.A.R., to whom my special thanks are due.

3. At the last meeting of the Governing Body, I had sought your permission to take action to review the research work done so far, both at the Centre as well as in the States and to examine carefully whether the arrangements for agricultural research work were adequate or not, in the context of the various development measures initiated in the National Plan. At that time, we had been thinking on the lines of setting up a high-level Committee, in order to review the work, if necessary, on the lines of a recommendation made by the Planning Commission. Before setting up any Committee, however, I have come to the conclusion that considerable basic data should be collected on the work done on each agricultural subject, in order to form the basis of examination by a high-level Committee. We have, therefore, initiated action already to get a review prepared on each agricultural subject by scientists in the field. Such reviews will have complete data of the research work done in each field—both in the country as well as outside, and the gaps to be filled and the weaknesses, if any, to be overcome. We expect that these reviews will be completed in the course of next year, and in the light of the information that will be placed before us, we would take a decision as to the lines on which our policy and future plans for intensifying agricultural research, should be laid down.

4. During the short period of my association with the activities on agricultural research conducted by the Council, I have a feeling that we have already accumulated much useful information which would help step up production several-fold, if only improved farm practices could be effectively translated into practice on the cultivators' field. To do this, we shall now have to intensify our Agricultural Information Servicing, particularly in view of the fact that most of our farmers are not in a position to read. Faced with this problem, the State Ministers of Agriculture have also written to me about the need for putting to use the various modern media of conveying useful results of agricultural information to the cultivator through "Agricultural Films", "Film-strips", "Information Literature", in simple language, etc. I do not propose to deal with this item before the Governing Body, but I am bringing up a separate note before the Council meeting, where the various State officials who are concerned with Agriculture, would also be present, so that we could devise a suitable and effective machinery for intensifying our efforts in the direction of disseminating agricultural information in all the States.

I would now request the Secretary of the Council to explain each item on the Agenda.

APPENDIX XIV

NOTE ON ITEM 2 OF THE AGENDA FOR THE MEETING OF THE
MINISTERS OF AGRICULTURE TO BE HELD ON 15TH AND 16TH
DECEMBER, 1954.

SUBJECT.—*Constituting a Rice Committee or Commission*

The International Rice Commission was established under the sponsorship of the Food and Agriculture Organisation (FAO) for the purpose of promoting national and international action with respect to production, conservation, distribution and consumption of rice, but excluding matters relating to international trade. At present it has 24 Members Governments. It held its first session in Bangkok (Thailand) in March, 1949; second session in Rangoon (Burma) in February, 1950 and the third session in Bandong (Indonesia) in May, 1952. The fourth session was held in Tokyo (Japan) from 11th to 19th October, 1954 at the invitation of the Government of Japan who had set up a National Rice Commission to make the necessary preparations.

An Indian delegation under the leadership of Dr. P. S. Deshmukh, Union Minister of Agriculture participated in this session and they invited the International Rice Commission to hold its 5th session in India. The International Rice Commission have recommended to the Director General, Food and Agriculture Organisation, to arrange with the Government of India to hold the next session in India sometime during the last quarter of 1956.

The point for consideration is whether India should establish a National Rice Commission and entrust to it the responsibility of organising the next session of the International Rice Commission at a suitable place in 1956. Any suggestions, which the Ministers may like to make both as regards the venue of the next session of the International Rice Commission and the membership of the proposed National Commission, would be welcome.

In this connection the recommendations made in the report submitted by the Indian delegation who attended

the 4th session of the International Rice Commission at Tokyo are given below:—

“The International Rice Commission has accepted the invitation of the Government of India to hold its Fifth session in India in 1956 and has recommended that the Director General may make arrangements with the Government of India for holding the session in India some time during the last three months of 1956. This means that India will have to set about immediately to prepare the plans and programmes for the 1956 session. The arrangements made by the Japanese Government for the 4th session of the Commission in Tokyo were perfect and reflected very careful planning and preparation. Now that India has invited the Commission, it will be essential to take the necessary steps to ensure that the Fifth session of the Commission to be held in this country gets the attention and the assistance that it deserves and that India prepares itself fully to make it an unqualified success. The delegation recommends that in this connection the following steps should be taken:—

- (a) The constitution of a Rice Commission in India to act as a liaison between the F.A.O. and the Government of India. Obviously this organisation should function under the Ministry of Food and Agriculture and should consist of a few dynamic technical officers and administrators on whom will rest the responsibility of preparing the plans and programmes for the Fifth Session in particular and of carrying out the various recommendations of the International Rice Commission. It may be observed that the International Rice Commission at its meetings in Tokyo adopted unanimously the suggestions of the Minister for Agriculture, India, that each of the member countries should constitute immediately an indigenous rice commission of its own with the objectives mentioned above.
- (b) Sufficient funds should be placed at the disposal of the Commission suggested above for taking in hand the plans and preparations for the 1956 session right from now. The Japanese Government had liberally financed the scheme for holding the 1954 session of the Commission

in their country with the result that very instructive exhibitions could be arranged by them, research and other publications printed and made available to the delegates, field trips to the research and other technical institutions arranged for the delegates and, in short, everything done for the success of the Commission's deliberations. In the matter of funds, there is a precedent as regards the amount earmarked for the forthcoming meetings of the World Forestry Conference. The International Rice Commission may be given the assurance of working within a budget similar to that assigned to the World Forestry Conference so that the organisation responsible for arrangements knows from the start the provision within which it will have to function.

- (c) The delegation is firmly of the opinion that a study of the plans and programmes and the detailed steps taken by the Japanese Government for the 1954 session of the Commission will be of great help to India in making its own plans and arrangements for the 1956 session of the Commission.
- (d) The delegation recommends that as soon as the Indian Rice Commission is constituted it should ask all the rice growing States in India to prepare small booklets outlining the work that the State has done in the field of rice research and extension. The State should also prepare from now suitable charts, models and exhibits based on their research and development work on rice with a view to including these in the All-India Exhibition on rice to be arranged at the time of the Commission's session in 1956."

MINISTRY OF FOOD & AGRICULTURE.—ITEM No. 3.
(Subject for informal discussion.)

I. Review of the Position of Fertiliser Supplies in the Country by the end of the Year (1954).

The State Governments were having a carry-over stocks of 1,42,051 tons at the beginning of the current year. On the basis of the net firm demands received from the State Governments and other commercial interests for the current year and the total supplies available with the Pool for

distribution against such demands, allocations of a total quantity of 4,83,082 tons were made to the various State Governments and other interests. Of this the States were allotted 3,99,306 tons and the remaining 83,988 tons were allotted to the commercial interests such as the Tea Industry in the North and the Tea and Coffee Plantations in the South. Against these allocations, total despatches upto the 14th November, 1954 amount to 3,13,132 tons (2,84,432 tons to States and 29,000 tons to other interests) leaving 1,69,862 tons to be supplied upto the end of the year against the pending allocations, of which the States account for 1,15,344 tons and other interests 54,418 tons. In other words, if all the allocations are lifted, the total despatches during the current year will be 4,83,082 tons as against the total despatches in 1953 of 3,77,035 tons. As already stated above, in 1953 however, the carry-over stocks at the end of the year amounted to 1,42,051 tons with the States alone. It is expected that at the end of 1954 the carry-over stocks will not exceed 75,000 tons. Assuming 75,000 tons as the carry-over stocks at the end of this year and taking into account the actuals of 1,42,051 tons at the beginning of this year, the consumption of ammonium sulphate in 1954 may be estimated to be of the order of 5,50,133 tons as detailed below:—

(i) Carry over stocks with States at the beginning of the year.	1,42,051 tons.
(ii) Despatches during 1954 against allocations made to States as well as to others.	4,83,082 „
Total:	<u>6,25,133 „</u>
Less carry-over stocks expected at the end of the current year.	75,000 „
(iv) Consumption estimated.	5,50,133 „

II. Comparison of consumption over the last four years.

The consumption of sulphate of ammonia is on the increase since 1950 excepting in 1952 when there was a fall in consumption due mainly to the failure of monsoon over

a large part of the country. The consumption during such of these years was as follows:—

Year.	Quantity.
1950	2,72,176 tons
1951	2,93,353 tons
1952	2,76,258 tons
1953	4,26,584 tons

A statement showing the statewide consumption of sulphate of ammonia during the above years is enclosed as desired by the Minister. From a perusal of the above figures it would be observed that there has been a marked increase in consumption during the last and as well as the current year. Prior to 1953, the pool issue price of this material was as high as Rs. 380 per ton f.o.r. despatching station which together with the overhead charges on account of freight and handling etc., inflated the retail price to an unremunerative level thus impeding in the process of maximization of the use of this vital fertilizer. Accordingly during early 1953 the pool issue price was reduced to the level of Rs. 290 per ton f.o.r. despatching station in the case of Sindri material, Rs. 310 per ton for imported stuff and Rs. 335 per ton in respect of F.A.C.T. product. This, as compared to the previous year, represented a substantial reduction and resulted in the increased consumption of this fertiliser to about 54 per cent. over the last year's figure of consumption. Still the position was not satisfactory in as much as even at those prices, the retail prices fixed by States were high and there was a great variation in prices from State to State. In some parts of the country it was as high as Rs. 450 per ton thus making it unremunerative for the cultivator to use this fertiliser. It was realized early this year that the enforcement of a uniform retail price throughout the country at the lowest possible level was the right solution for increasing still further the consumption of this fertilizer. Accordingly a uniform selling price was brought into effect early this year. In so far as the Pool was concerned a uniform price of Rs. 315 per ton delivered at any railhead destination was fixed. In other words the Central Government undertook to make available the fertiliser at any railhead at factory price or procurement price and an equated railway freight. In their turn the States were expected to manage the retail distribution within a maximum margin of Rs. 30 per ton which was to cover the distributor's commission, internal transportation, handling at the railhead destination and godown, and storage. According to the information

available in this Ministry except in the States of U.P., Punjab and PEPSU where it is sold at Rs. 350 per ton, in all other States the fertiliser is sold at Rs. 345 per ton. To conclude it may be stated that the reason for such a marked increase in the consumption of this fertiliser during the current year, in the main, is to be found in the fact that the cultivator in this country has begun to realise the value of the chemical fertiliser. The process was accelerated by a marked reduction in the price which was brought into effect by the adoption of a uniform price.

III. Target of Consumption for 1955.

The Experts have made the following estimates of requirements of nitrogenous fertilisers on the basis of all known factors such as irrigation facilities which would be available in the period of the Second Five Year Plan. The figures are in terms of Ammonium Sulphate:

1956-57	7,50,000 tons
1957-58	9,50,000 tons
1958-59	12,00,000 tons
1959-60	15,00,000 tons
1960-61	18,50,000 tons

It is felt that to achieve a target of consumption of 7,50,000 tons in 1956 as contemplated in connection with the Second Five Year Plan the increase over the actual consumption of 1954 should be at least 85,000 tons in 1955 leaving a balance of 1,15,000 tons to be achieved by 1956. On this basis the estimate of requirements in 1955 would be of the order of 6.35 lakh tons of ammonium sulphate. This is made up of 5,37,000 tons to be taken by the States, 80,000 tons by other interests and the balance for a small carryover stocks at the end of 1955. The States have so far indented for 4,62,000 tons (exclusive of their carry-over of 75,000 tons estimated). Thus adding the carry-over to the fresh indents of the order of 4,62,000 tons the total requirements of the States go upto 5,37,000 tons.

IV. Programme of Imports during 1955 and future years.

In the middle of the current year, it was found necessary to plan an import of one lakh tons of ammonium sulphate but the actual procurement fell short of this programme by 26,000 tons. It is believed that the whole of this quantity of 74,000 tons imported this year will be lifted by the allottees whether States or other interests within the current year. The procurement of these fertilisers has been made under the normal procedure of inviting tenders

by the D.G.S. & D., New Delhi. Prices have ranged from Rs. 289-8-0 to Rs. 309-4-0 per ton (including freight) landed cost Indian ports. So far as the next year's programme is concerned, of the target figure of 6 35 lakh tons, the carry-over stocks with the States on 1st January 1955 will be about 75,000 tons so that a total quantity of at least 56,000 tons will have to be procured. As against this figure, the internal production will account for the following:—

(i) Factory at Sindri	3,00,000 tons
(ii) Factory at Alwaye	40,000 tons
(iii) Iron and Steel Works	32,000 tons
Total	3,72,000 tons

It will therefore, be necessary to procure 1,88,000 tons of ammonium sulphate from abroad in 1955. The estimate of consumption referred to above is a conservative one and if the present trend is maintained, the consumption ought to reach a higher level. In that event, we shall naturally have to arrange larger imports. The experience of procurement this year shows that the method of inviting tenders has not been a success. Chemical fertilisers are not produced much in excess of requirements in the world as a whole, and, consequently, the exportable surplus is generally limited. It is not possible also for producers to expand immediately their producing capacity to meet an entirely unforeseen demand such as of this country, unless they are assured of a long term programme of offtake. The response to the tenders which are issued by the Government of India from time to time usually comes from middlemen who are not producers themselves, but who try to pick up surplus supplies wherever they happen to be available at the time. In view of these and other reasons it is proposed that Government should enter into direct long term contracts with the manufacturers in the European countries for the supply of such fertilisers as are required, on the basis of at least three years contract. It has been decided to submit the proposal to the Economic Committee of the Cabinet and a draft Memo. prepared in this connection has been forwarded to the Ministries concerned for their comments. After the comments of the Ministries are received, a joint note for the Cabinet will be prepared. In addition to the supplies of sulphate of ammonia, it is also proposed to import during the next year, 7,000 tons of Urea and 4,000 tons of ammonium sulphate nitrate.

Besides this a quantity of 5,000 tons each of these two fertilisers will be imported under the Indo-U.S. Technical Cooperation Programme.

No decision has so far been arrived at the time by which the supplies from abroad should arrive. No indication of the prices can be given at this stage. As per Secretary's impression gained as a result of his contact with European producers in U.K., Belgium, Holland, and Germany, it will be possible to procure supplies of ammonium sulphate at about Rs. 285 per ton Indian ports.

V. Procurement price of Sindri sulphate of Ammonia during 1955.

We are at present paying Rs. 275 per ton ex. factory in respect of Sindri sulphate of ammonia. This price is operative till the 31st December, 1954. Sindri is the largest producing unit and the annual production is of the order of 3 lakh tons. Sindri's price during 1953 was Rs. 285 per ton and they agreed to reduce to Rs. 275 per ton early this year. The question as to what extent the Sindri Factory could further reduce their price during the next year was discussed at an informal meeting held in Secretary's room on the 20th November, 1954 with Production Secretary and it was indicated that the maximum reduction Sindri could give at present was only Rs. 5 per ton thus reducing the price to Rs. 270 per ton. It has, however, been assured that if the Factory reaches its rated capacity they could no doubt consider the question of further reduction in the price.

Statement showing consumption of sulphate of ammonia during 1950, 1951, 1952 & 1953.

Serial/ No.	Name of the State	(1)					(6)
		(2)	(3)	(4)	(5)	(6)	
1	Assam	.	.	.	.	200	1,157
2	Ajmer	.	.	.	.	..	48
3	Bihar	.	.	.	.	12,760	20,141
4	Bilaspur	.	.	.	.	..	1
5	Bombay	.	.	.	.	28,627	25,175
6	Madhya Pradesh	.	.	.	.	5,817	17,263
7	Madras	.	.	.	.	99,891	95,730
8	Andhra	.	.	.	.	..	57,729
9	Orissa	.	.	.	.	4,569	9,409
10	Punjab	.	.	.	.	3,169	13,818
11	Saurashtra	.	.	.	.	..	1,177
12	Uttar Pradesh	.	.	.	.	40,104	44,894
13	West Bengal	.	.	.	.	7,613	23,025
14	Hyderabad	.	.	.	.	4,603	10,500

Agenda item No. 4.

SUBJECT:—*Publicity arrangements in the States.*

With the setting up of N.E.S. blocks and Community Projects which would be extended to the entire country by 1961, it is essential that effective steps should be taken to increase the output of agricultural information literature and suitable machinery developed for conveying improved farm techniques to the farmers through all modern media. Without such a liaison, the village-level workers who are trained for a short period could not maintain effective contact with the advances made in research. The following few concrete suggestions are made which would be practical value in this direction:—

(1) *Production of agricultural information literature.*—It is necessary that the State Governments should have adequate machinery for producing agricultural information literature; such as “information journals”, “extension pamphlets and leaflets” in a simple and attractive manner which would be acceptable to the farmer. The Indian Council of Agricultural Research have already set up an example in this field and could extend their co-operation to the States, provided each State Agriculture or Animal Husbandry Department develops a nucleus staff to specialise in producing agricultural information literature in local languages. Some of the State Governments have already been supplied with printing machinery, through which such information literature could be produced on a large-scale, as cheaply as possible. This also emphasises the need for setting up a nucleus staff in each State Agriculture Department, without which the efforts made would remain isolated and haphazard. It is accordingly suggested that each State Agriculture Department should establish a nucleus staff, consisting of (1) an Editor (who should be selected very carefully and trained properly), (2) an Artist and a few others to run the printing machinery. If the State Governments agree, a team of Officers of the Council who are now engaged in this work, could visit the States and assist them in deciding the size and type of staff to be recruited.

(2) *Farm Bulletins direct to the local newspapers.*—The Council has started on the occasion of its Silver Jubilee, a scheme under which, “farm bulletins” containing information on a single improved farm practice would be issued direct to 2,000 rural newspapers spread all over the country. The intention is that these newspapers which are circulated in the rural areas would reproduce the information contained in the farm bulletins, in local languages

for the benefit of the farm public. As such information would convey the result of some approved research, it is obvious that the farmer might seek further information in the light of the local conditions. This information shall have to be supplied by the local Agricultural Officer. The farm bulletins would be issued simultaneously to the Agricultural Officers of the State Departments and the Development Commissioners Block Level Officers etc. whose duty it would be to furnish any further information required by the farmers on the subject. It would be appropriate if suitable instructions are given by the State Departments of Agriculture to their Agricultural Officers with regard to the release of the farm bulletins, and officers earmarked so that they could talk direct with Council on matters arising from the release of such farm bulletins.

(3) *Production of Agricultural Films.*—At present there is no single machinery which co-ordinates the production of agricultural films. In fact, the production of such films is far from satisfactory, and hardly few films are produced. Even those produced by the Publicity Departments of the State Governments aim at propaganda value and are not directed to convey a message to the farmer with practical hints on agriculture. The Council has produced a few films such as "poultry development" etc. There is large scope for further improvement and development if there is Centre-State co-operation in this matter. In all foreign countries, agricultural films form the main plank in demonstrating improved farm techniques to the farmers. It follows, therefore that the production of such films should be continuous and adequate. Some of the States have produced one or two agricultural films, but here again, for want of technical knowledge and continuity in production, the quality suffers. This difficulty could be overcome if a fund is created in the Council—called Film Fund—to which each State Department of agriculture would contribute annually that cost of one agricultural film—ranging from Rs. 20,500 to 30,000. The Council will add to these resources, and with the co-operation of T.C.M. and other interested Agencies, produce annually a number of agricultural and animal husbandry films based on suggestions received from the State Governments. The films produced could be dubbed in all the local languages and any number of copies could be made available to each State, at a rate less than Rs. 300 per copy containing 2 reel films. Thus a State which is not in a position to produce even one film in a year, could receive in a year as many films as are

produced—say 10 films—in its own language. As continuity of production would be assured, we could improve upon the quality of such films and within a few years, expect to meet the growing demands of the State Governments in this respect. If there is agreement on this point, further details of the scheme would be worked out and the scheme officially put to State Governments.

Item No. 5.

SUBJECT:—Organisation of Campaigns on Intensive Cultivation.

The campaign on paddy ended with a great success in the first year, but, unfortunately, the campaign launched during the year had slackened. There was proposal for campaign on other crops also which, however, has not materialised to any appreciable extent. It was, therefore, necessary to re-examine whether any administrative changes were required to ensure better implementation of the various crop campaigns. Action regarding re-organisation at the centre is already being taken. The implementation of campaigns was, however, ultimately the responsibility of the States concerned and success of campaigns depended to a large extent upon the full participation of the States. It was felt that the type of officers appointed during the year for campaigns in different regions could not possibly exert much influence on the cultivators in the different regions or on the State Governments concerned. It is to be considered whether, in the circumstances, it would not be advisable to arrange that the Joint Directors of Extension in the States take up the direct responsibility of implementing the campaigns under the guidance from the centre. It is felt that the matter of a proper organisation for the implementation of campaigns under the Extension Services of the States should be carefully looked into on the one hand; while, on the other hand a proper organisation for publicity and adequate use of the audio-visual materials should be set up in all the States as early as possible. It is felt that there is need for a co-ordinated organisation in the States which may utilise the various publicity materials, films, etc. more fruitfully in co-operation with the centre and it is to be considered whether each State should not review the position of their campaigns and publicity organisations and re-organise the same, wherever it may be necessary.

It was also felt that campaigns should be mounted one at a time and suggestions are invited as to how best this plan for mounting one campaign at a time could be implemented.

APPENDIX XV

SPEECH OF DR. PUNJABRAO DESHMUKH, MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA, AT THE ANNUAL GENERAL MEETING OF THE I.C.A.R. ON 16-12-1954 AT 11 A.M.

DEAR FRIENDS,

Shri Damle, Vice President of the Indian Council of Agricultural Research has already given you a brief account of the salient features of the 24th Annual Report of the Society, which has now been placed before you. The audited accounts of the Society for the year 1952-53 have also been placed before you. I have only a few remarks to make before I move that this Council adopts the Annual Report and the audited accounts.

2. I have briefly indicated to the members of the Governing Body that while we have made considerable advance in agricultural research, our efforts to convey the results of research to the farmer, have not kept pace with the progress made in the field of research. We have been giving some thought to this since 1952, when a Conference on "Agricultural Information" was convened at Lucknow. The Council has given a lead in several directions, and while these efforts are no doubt commendable, I feel that for a country of the size of India, and in the context of our National Plans for development, major portion of which is agriculture, it is essential that systematic efforts should be made to strengthen the Agricultural Information Servicing Organisation throughout the country. We have a very favourable climate now for intensifying work on this field, not only because our farmers have responded most splendidly to our appeals but also because Government is developing the National Extension Service to place at least one trained Village Level Worker for every 5 to 10 villages in our country, who would serve as a link between the farmer and the scientific worker on the one hand and the Government on the other. It is expected that by 1961, trained village level workers would be located to cover the entire country. We have, therefore, to think whether we have adequate machinery to supply continuously these trained personnel with agricultural information on improved farm practices, which the farmer

can understand and adopt, for stepping up agricultural production. Many of the State Ministers of Agriculture have written to me on the subject. While fully appreciating magnitude of the task, I would give below a few concrete suggestions, on which we could arrive at some definite decisions either at this meeting or in our informal meeting.

3. In the first place, I would suggest that we should strengthen our machinery for collecting agricultural information and putting it across to the farmer. In other words, we should improve our existing resources for producing agricultural information literature. As all of you are aware, the Council has made certain preliminary efforts in completely modifying its farm journals and magazines which have been very much appreciated by the farmers and the public. We are also producing a number of "Information pamphlets and leaflets" for the benefit of the village Level Workers in the National Extension Service Blocks and the Community Project areas and the progressive farmers. But these are produced only in English and Hindi. Vigorous efforts are necessary to improve similar information literature produced by the State Governments and also simultaneously to translate into local languages the information literature produced by the Council. It is my view that it is impossible for any single organisation at the Centre to meet the needs of the entire country in this respect. It is obvious therefore, that each State Agriculture Department should set up a nucleus "Agricultural Information Unit" consisting of one trained Editor, an Artist and a few others who could specialise in producing "Agricultural Information" literature, to be printed in local languages for distribution to the farmers. Once the State Governments could take responsibility for setting up nucleus staff for this purpose (and it is essential that such staff should be located in the Agriculture Department or the Development Department in the State and not in the Publicity Organisation of the State Governments), then the Council would be prepared to assist in training such personnel in the production of literature on modern lines. I am glad to say that this was in fact the view of the last Conference of the Ministers held at Srinagar. The view was unanimously expressed that Agricultural publicity is such a vital and specialised subject that it was imperative that both the Central and State Governments organised Agricultural Publicity Section in the Departments concerned and not depend merely on the general Publicity and Information Departments of

Governments. I would, therefore, strongly recommend the establishment of such machinery in each State which would go a long way in filling the existing gap in this field.

4. Secondly, the Council is embarking on a new venture today, of issuing farm bulletins direct to newspapers in the rural areas. Although we have been producing agricultural information literature in the simplest possible language, one of our greatest difficulties is in the way of our information booklets reaching the rural areas where our farmers live. This could be done only if the newspaper catering to the rural areas are induced to take interest in such work. The farm bulletins, I have referred to, will consist of a single theme of improved farm practice. The bulletins would be released by the Council to 2,000 agencies running newspapers in the rural areas who would, in turn, translate them in the local languages and incorporate them in their newspapers. This is principally intended to serve the rural areas. These farm bulletins would also be simultaneously forwarded by the Council to the Agricultural Officers of the State Governments, our main objective being that if any of the farmers find the information useful and want more practical suggestions, the local Agricultural Officers should be able to provide a such follow-up information. We propose to release at least 7 to 10 farm bulletins every month, and I am sure, if there is adequate "follow-up" action by the Agriculture Department of the State Governments at the district and village levels, the object of speaking direct to the farmers through such farm releases, would have been largely achieved. In this respect, the co-operation of each State Government is most essential.

5. Thirdly and the most important of all, is the production of Agricultural Films. As most of our villages are not in a position to read, it is essential that more and more attention should be given to educating them through the media of Agricultural films, which would provide one of the best forms of conveying the results of agricultural research to the farmers. At present, the production of agricultural films is haphazard and not done in a co-ordinated manner. Individual efforts in the direction of producing such agricultural films would be costly. Besides, the production of such films is highly scientific, in the sense, that to convey a scientific idea through a film, considerable training and experience is necessary. Any producer, with resources alone, could not do justice. It is necessary therefore, that we should develop a suitable machinery for producing selected "Agricultural Films"

- for the use of all the State Governments. The Council has decided to set up a Central Film Library, where the agricultural films produced in the country and abroad, would be housed and would be available for use by all the State Governments on loan. But even so, it is essential that "Agricultural films" adopted to local conditions should be continuously produced if our Village Level Workers are to push ahead with vigour many of our development programmes. I am, therefore, circulating a separate note for our informal meeting as to how such a machinery could be set up with Centre-State co-operation which is most essential. In brief, I am suggesting that each State should contribute to a film fund annually of a specific amount, say Rs. 30,000, which is the minimum cost of producing one film of two reels. The Council would then undertake with the co-operation of other foreign agencies, which have specialised in the production of such films, to produce annually a certain number of selected films, say 10, based on suggestions from the State Agriculture Departments. The films produced by the Council could then be dubbed in all the local languages and copies made available to each State Government on payment of a small sum of Rs. 200 to 300 per extra copy. Thus, a State which is in a position to produce hardly one film at a cost of Rs. 20,000 to 30,000 annually, would stand to benefit under the proposed arrangement and get a number of agricultural films in all the languages. Besides, once a Central Organisation specialises in this type of work, the quality of agricultural films could be continuously improved upon, resulting in the production of more and more films of practical value. I am arranging to show you during your stay here a few of such films already produced by the Council, with the co-operation of the T.C.M., such as "Poultry development". I would request you to give your serious consideration to this scheme, which, if given effect to without delay, would, within a few years' time ensure the continuous production and supply of films on Agriculture and Animal Husbandry subjects, which will be of immense value to the farmers.

6. In my speech before the Governing Body yesterday I had recalled my suggestion to undertake a review of the research work done so far both at the Centre as well as in States and to examine whether the arrangement for Agricultural Research in the context of our National Plans was adequate. I then indicated that we had decided to collect basic data for the purpose of examination by a high level Committee. I hope this work will proceed

with the utmost expedition so that we may be in a position to assess our requirements of the future and embark on a more intensive programme of research and demonstration so as to bring about a complete revolution in the agricultural development of the country, which the country is looking to and which, in my view, is by no means an impossible task. My recent visit to Japan has convinced me still further how our arrangements for research as well as extension requires still further strengthening. I, therefore, intend this review and examination to be the basis on which we will frame a comprehensive second Five Year Plan of research, extension as well as publicity.

7. The putting in in the field of a huge army of village Level Workers gives this matter still further importance because if we cannot feed these village level workers adequately not only with information and publicity material but with a certain amount of inspiration to be of utmost service to the man on the plough, we would not be deriving from these field workers all the benefits that we should be able to obtain.

I have already taken enough of your time. I would not like to throw upon the floor for discussion.

APPENDIX XVI

WELCOME SPEECH BY PROF. A. C. BANERJI, VICE-CHANCELLOR,
ALLAHABAD UNIVERSITY, ON THE INAUGURATION OF 15TH
ANNUAL CONFERENCE OF THE INDIAN SOCIETY OF AGRICUL-
TURAL ECONOMICS HELD AT ALLAHABAD ON 26TH DECEMBER,
1954.

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India is mainly an agricultural country and the chief source of livelihood of the great majority of our people is still agriculture. Hence it is very necessary that agricultural education and the formulation of a suitable agricultural policy should be recognised as major national issues. This led to the incorporation of the Indian Council of Agricultural Research in 1929. In early thirties there was great depression in Agricultural production and the agricultural income was reduced by about half. Hence arose the great necessity for careful study of agronomy and rural economy, and consequently the Indian Society of Agricultural Economics was founded in 1939. The formation of this Society has given great impetus to the investigation and improvement of the economic and social conditions of agricultural and rural life in India.

No single nation can claim that modern agricultural methods and policies are its special inventions. On the other hand, they have mostly been evolved gradually by the combined efforts of many countries. England introduced enclosure laws quite early. Common pasture for cattle was abandoned and all land was fenced up and placed under private control. These laws had both good and bad effects. We are grateful to England for our knowledge of the values of phosphate fertilizers. Germany was first to evolve a coordinated policy of agricultural and industrial development which is evidently of great economic value. For instance, the sugar content of sugar beets was considerably increased by the combined efforts of industry and agriculture in Germany.

Many important contributions to agricultural production and economics have been made by the United States of America. Large-scale mechanised and contract farming has been introduced in America. It was not possible for every farmer to possess costly modern agricultural machinery. In contract farming a firm or a rich individual buys costly machinery, undertakes the ploughing, planting and cultivation for a number of land owners who are

unable to buy their own machinery. Cooperative management of fruit plots is also highly developed in America. The owners of orchards form co-operative societies there. Much labour is saved and great economy is effected by this method as these societies employ the staff who plant the fruit trees and fertilise the orchards. They also spray, pluck, transport and market the fruits. By adopting very progressive rural and agricultural policies Denmark has been able to raise herself from a State of ignorance and poverty to a very high social and economic level. The peasants in Denmark manage their own farms by co-operative methods. Danish Government gives adequate grants to the farmers; but does not impose any control over them.

In Japan the surplus time of the agricultural communities is utilised in developing small industries, hence the small income of agriculturists is considerably increased.

India can learn much by studying the agricultural policies which have been developed by other countries. There are many acute problems facing India. The prime necessity for India is to feed herself; otherwise it would not be possible for her to maintain national stability. What India needs urgently at present is a team of agricultural experts and economists who would be able to solve successfully the immediate problem of growing adequate food of proper nutritive value economically for our vast population. About 20 years ago, Sir John Megaw, an eminent medical doctor, made a special study of food conditions in different parts of India. According to his estimate 40 per cent. of the entire population in India is badly fed and another 20 per cent. is very poorly nourished. I do hope that matters have improved perceptively since then.

Small land-owners and farmers are often handicapped when they are not able to get any credit for growing crops;—consequently, there is much loss of production. Hence the present credit arrangement for purchasing seeds and farm equipment should be considerably improved. The zamindari system might have many faults, but its abolition has certainly disturbed existing credit arrangement, though perhaps temporarily. Much progress can be made quickly and good economy can be effected if owners of two or three best farms in each village get free seeds and fertilizers with the express condition that they would follow strictly the given directions and allow the neighbouring farmers to see these farms to get an idea of the progress done in them due to the adoption of new ideas and improved methods.

Often the excess of moisture and poor handling spoil our stocked grain, and consequently our food deficit is greatly increased. Hence investigation into the causes of such spoilage in order to find effective remedy is a matter of utmost importance.

In order to have a sound agricultural policy, it is necessary to raise agricultural training and research to a high level in India. In this connection the work done by Max Sering of Germany is noteworthy. His monumental work is his successful investigation into the conditions that determine the best side of farms. In India nobody knew more than Mahatma Gandhi about our rural life. His thorough and intimate knowledge about the conditions prevailing in our villages enabled him to see the rural life, firstly, in relation to the whole life of India, and, secondly, in relation to the entire life of the world. Recently, Acharya Vinobha Bhave, who is a true disciple of Mahatma Gandhi, has launched his Bhoodan movement. He is the exponent of a type of agronomy and rural life which promises to augur well.

India does not lack competent men who have got special aptitude for high quality of agricultural research. They should be able by study, experiment and investigation to evolve a sound national agricultural policy in India. They are expected to bring about a happy synthesis of traditional agricultural experience and accomplishment of India, and of the best scientific wisdom and agricultural skill of the West.

Totalitarianism in agricultural methods is foreign to the spirit and genius of India. Any inharmonious imposition which is incompatible with the vital principles for which India stands is sure to militate against her very soul. Hence if any programme aiming at quick solution of agricultural problems compels the villagers to abandon their personal freedom of action and give up wholly their ancient customs and modes of life, it would very likely bring about suspicion, resentment and opposition among the villagers and lead to unfortunate consequences.

In conclusion, I wish every success to this Conference. Eminent delegates from various parts of India have assembled here. I am sure their deliberations would be of utmost importance to our country and they would be able to tackle successfully some of the difficult agricultural problems that are confronting us at present.

APPENDIX XVII

SPEECH BY DR. PANJABRAO S. DESHMUKH, MINISTER FOR AGRICULTURE, AT THE 15TH ANNUAL CONFERENCE OF THE INDIAN SOCIETY OF AGRICULTURAL ECONOMICS HELD AT ALLAHABAD ON 26TH, 27TH AND 28TH DECEMBER, 1954.

I feel great pleasure in inaugurating the Fifteenth Annual Conference of the Indian Society of Agricultural Economics which is being held for a second time at Allahabad. When the Conference met here nearly ten years ago, it was presided over by Mr. Leonard K. Elmhirst, who inspired the idea of organising the Indian Society of Agricultural Economics. This time the Conference is fortunate in having as its President, a highly distinguished and versatile Economist, Prof. D. R. Gadgil.

The Indian Society of Agricultural Economics has been taking a leading part in initiating and encouraging research work and discussions on the various problems facing this country in the sphere of rural economics. Objective research in these problems has now assumed a special importance for us because the State in India has assumed the role of a direct and an active participant in the social and economic development of rural areas. It is very essential that the policies it pursues and the methods it adopts for this purpose should be based on a correct understanding of the existing situations and the results that may be expected to follow any disturbances in the various balances characterising these situations. For good or evil, State actions, by their very magnitude, are bound to have extensive effects on the life of the people coming within their range of influence. A welfare State striving, with limited resources, to raise a population as poor as our rural masses to a higher level of social and economic existence should, therefore, be as deeply interested in research on problems which gatherings like yours discuss as any pure academician can be. It is in recognition of this convergence of the interests of the administrator and the research worker that the Central Government have recently initiated steps to strengthen the existing arrangements in the Universities and other institutions already engaged in such research work.

I would mention the establishment of the Agricultural Economics Committee of the I.C.A.R. as the single most important event of the last year for the conduct of research in agro-economic problems in our country. This Committee is to work in close co-operation with the Research Programmes Committee set up last year by the Planning Commission and their methods of approach for encouraging purposive research in this country are very similar. These Committees are intended to organise in co-operation with Universities and other institutions, programmes of co-ordinated research and investigations into selected problems of interest to the Ministry of Food and Agriculture, and the Planning Commission respectively. The I.C.A.R. Committee, in particular, while it will help in strengthening the existing arrangements for the conduct of independent and unbiased research, will also help in the co-ordination of what were formerly isolated and sectional efforts at research on the part of individual institutions into a unified programme for the entire country. I am very hopeful of fruitful results flowing from the establishment of this Committee. Another important event which I might mention here has been the establishment of four agro-economic research centres at Delhi, Poona, Madras and Shantiniketan, which are being financed by the Government of India. The work of co-ordinating the activities of these research centres is being handled in the Directorate of Economics and Statistics, Ministry of Food and Agriculture. Studies in the economics of farm management have also been sponsored in six different regions of the country jointly by the Research Programmes Committee of the Planning Commission and the Directorate of Economics and Statistics, Ministry of Food and Agriculture.

These steps represent just a beginning in the direction of establishing, on a permanent footing, a net-work of research centres carrying on independent investigations into the various problems concerning the agricultural sector with a strong central organisation providing financial assistance and unified direction to these centres.

I am conscious of the possibility of many friends here feeling sceptic about the adequacy of all these steps in relation to the importance of this work and the leeway yet to be made up in this field. I would, however, point out that in such matters we can probably construct or rather reconstruct only slowly. Even if finances were not a limiting factor on the speed with which we can proceed,

paucity of adequately trained personnel required for discharging the various functions of direction and field work would, in itself, impose a serious limitation in this regard especially when we are trying to expand similar activities in the other sectors of our economy also. In this context, I would like to stress the importance of the pooling and optimum utilisation of our resources in technical personnel competent to guide and carry out such research work. I am quite confident that your Society and the Committee on Agricultural Economics of the I.C.A.R. which have a common President in the person of this pioneer in Agro-Economic Research, Shri Manilal B. Nanavati, would be able to ensure this by drawing up a co-ordinated programme of work relating our needs to the available resources through fixation of suitable priorities. I need not, therefore, dilate on this point except to recommend a careful study by all of you of the 'Report on the Research, Teaching and Public Administration of the Economics of Agriculture for India' prepared by the two eminent American economists, Prof. John D. Black and Dr. Hugh L. Stewart. The patterns of research studies recommended by them for this country and their other suggestions will, I feel sure, receive the highest consideration by your Society and all others interested in the proper organisation and expansion of research work in agro-economic problems.

I should not probably venture to comment in any detailed manner upon the individual items coming up for discussion before this distinguished gathering, so rich in experience and learning, but I would like just to give expression to some stray thoughts which some of these topics raise even in a layman like me. I have often wondered if it may not be that we are very slow in modifying views regarding certain of our institutions which are derived from situations that are fast melting away before our very eyes. I believe that many a time institutions having exploitative characteristics in certain situations can be made to shake off such characteristics when they move into new situations different in economic environments, legislative framework and patterns of State assistance and live in perfect harmony with their new environments to the mutual benefit of themselves and the Society of which they form a part. You are going to discuss the role of private agencies in the sphere of rural credit. It is a very happy co-incidence that this subject is coming up for discussion in a year when your deliberations are going to be guided by Prof. Gadgil who as Chairman of the Agricultural Finance Sub-Committee and also as a prominent member of the Board

of Direction of the Reserve Bank's Rural Credit Survey has been very intimately associated with investigations on this subject. I hope your deliberations will help in suggesting some ways of helping, encouraging, or, should I say, even coaxing this agency to play the role which should be assigned to it within an integrated structure of rural credit, which now appears to be an accepted goal of all approaches to this subject.

The other subjects which you are going to discuss are no less important than the one which I have just now mentioned. Indeed, the subject of Population and Food Supply highlighted by the 1951 Census Report is of great topical importance, and your discussions may throw considerable light on the potentialities of our agricultural production to meet the needs of the growing population.

I hope there are not many amongst you who have yet to recover from the unexpected phenomena of additional production of foodgrains this year. It would be very entertaining to compare the pronouncements and views of people of all sorts two years ago and what they have to say about food production and population at the present moment. There are not many people who are given to admitting their own miscalculations or lack of calculations, and, I am afraid, good deal of our target fixing deserves revision because the reality has shaken the basis somewhat rudely. In considering this subject, therefore, you will naturally have to take stock of a veritable revolution that has taken place since we started preaching in favour of the Japanese method nearabout two years ago. I have no hesitation in claiming it as a revolution, and although for the time being it is confined to India, I am confident it is bound to spread to most of the rice-growing countries of Asia sooner or later. Fortunately, the Indian people applied the essentials of this method to other crops also, and the results are apparent for every one to see. The recent improvement in the sugarcane crop has also the same flattering tale to relate at least in those areas which we had selected as the area of our sugarcane development campaign. While claiming some humble little credit for all this better production and thanking all those Ministers, officers and peasants who have whole-heartedly co-operated with us, I do not ever allow myself to be unmindful of the risks of monsoons and the consequent floods and drought and sometimes of both in the same year in the same area from our calculations. But while these gambles are there and would continue till the end of time,

the average production, I firmly believe, should continue to be on the increase. If we do not slacken in our efforts to assist the cultivator to resort to improved methods and enable him to take utmost advantage of them by seeing to it that he gets a very fair return for his troubles, we should not have to worry much about the future at least on the food front in spite of the increase of population which is lower than at least some countries of the world.

I am afraid I have singled out only a few of the subjects which are going to engage your attention. But even in doing this I allowed myself to venture much further than I wanted to. I think an administrator must guard himself against becoming or even trying to become an expert. Because I fear there is a real danger of the administrator's zeal being diluted, and ultimately even dissolved by any high degree of expertness that he may try to attain. An administrator should use experts and take the fullest advantage of their advice, but must never try to be one himself. That I believe is the key to the astounding success attained by the late Shri Rafi Ahmed Kidwai in pursuing the policy of decontrol and the equally confounding success of the Japanese method which I had the honour of initiating.

Under the able guidance of your President, I am sure your deliberations will not only be of a high level but also prove most fruitful.

APPENDIX XVIII

SPEECH BY DR. PANJABRAO S. DESHMUKH, MINISTER FOR AGRICULTURE, INDIA, AT THE ANNUAL GENERAL MEETING OF THE SOIL CONSERVATION SOCIETY OF INDIA—THIRD SESSION AT PATNA, ON 27TH DECEMBER, 1954.

Being closely associated with agriculture my interests in your Society is obvious. Soil conservation is indeed vital for all developments in modern agriculture and forestry, in fact, in all types of land-uses you can think of for the exploitation of the land resources for the benefit of mankind. It is natural, therefore, that I shall be eager to watch your progress in the fields of soil conservation. I understand you had interesting deliberations in some sections. I hope you would be able to come to some definite and useful conclusions at the end of your Session.

Soil is our greatest asset and we must try to save it, preserve it and enrich it. Soil is the life blood of a nation. We depend on it in every way for our prosperity and for our wellbeing. Yet we are losing it at a terrific rate from our cultivated fields, from our denuded forests and pasture lands.

In some places we are losing 7 inches of our rich fertile top soil in less than three decades, while in other places it may be more or less. Nature took some thousands of years to build this soil. Simultaneously, we are losing enormous quantities of plant food annually which could have supported many crops yielding tons of valuable food-grains and fodder from every acre of land. Can we afford such colossal loss any longer when our population is increasing by leaps and bounds? Recent sample reconnaissance erosion survey has revealed that in parts of undulating Deccan Plateau about one-third of the cultivated land is now so badly eroded that crop growing is no more a profitable proposition. Yet another survey shows that nearly one-fifth of the land which was classed as medium soil (9"-18" depth) seventy five years ago, can now be classed as shallow soil (0-9" depth). Laboratory investigations indicate that the eroded soils are highly depleted of clay and humus. Loss of clay, organic matter and of soil depth severely reduces the field capacity of soils for holding moisture and fertility ingredients. They

are ultimately reflected in lower crop yields. Thus the yields of *jowar* as reported in the quinquennial crop report published in 1917 ranges from 400 to 600 lbs. per acre, whereas the present range of yields of the same locality as calculated from crop cutting experiments stands between 300 to 500 lbs. per acre. Similar lowering of productivity of the lands through soil erosion is taking place all over the cropped area of the Union. The problem of soil conservation has, therefore, assumed a vital significance in the arable lands due to their vast extent, as also to the colossal damage already done.

A heavy loss of our good fertile soil is also taking place every year in the banks of most rivers and streams and the march of ravines is progressing unabated resulting in utter destruction and desolation of once prosperous villages and productive cultivated lands. No accurate estimate is available today about the extent of damage already done by ravine formation, but the scattered data obtained in some State show the enormity of the situation and the urgent need for an immediate solution of the problem. To quote one instance of the former Gwalior State:

"It has been estimated that there are some 800 sq. miles of such devastated land, and, considering the rate of erosion which might have taken place, it was estimated that this devastation has been accomplished during the past 400 years."

It is not only a land problem, but a social problem as well, as these ravines harbour dacoits and bandits who are a constant menace to the villagers. This problem faces other parts of Madhya Bharat, the States of Rajasthan, Vindhya Pradesh, Uttar Pradesh, Saurashtra, Bombay and other States, and unless some steps are taken quickly to investigate the problems involved and suggest remedial measures, we shall lose more of our fertile lands which will deprive us progressively more and more of food, fodder, timber and fuel.

Our agriculture has expanded from the plains to the hill slopes due to pressure of population. Steep slopes in the foot hills of Himalayas from the Punjab to Assam, Nilgiris, the Eastern and Western Ghats and other hills are being gradually deforested and over-grazed. From the bare and barren hills of the Siwaliks sand has been carried down by sand torrents into the plains below and has buried or destroyed thousands of acres of valuable agricultural land. In Assam hills, large tracts have been laid

bare by shifting cultivation. In the Nilgiris forests on steep slopes have been cut down to make room for potato cultivation and has caused great denudation. In Travancore-Cochin, forests on slopes of 40 to 50 per cent have been recently cleared to grow tapioca which has resulted in severe soil erosion and land slides affecting the dams, channels and river beds. The conservation of soils on the hill slopes is, therefore, an urgent matter today. This can be only done by introduction of proper land-use practices.

Then there is the vast desert in the Central India extending from Gulf of Cutch in the West to vast stretches of inhospitable and arid tract known as Rajasthan desert, estimated at about 80,000 sq. miles in extent which must be stabilised. Here due to pressure of ever-increasing population the vestige of vegetation are fast disappearing creating a condition conducive to further desert formation and destruction. In order to reclaim this vast area we require a sound policy. The existing situation requires, among other things, the extension of the geographic distribution of the best sand-dune loving plants, the breeding of new drought-resistant grasses or plants, development of improved re-seeding techniques, rotational grazing practices and creation of shelter belts. Further the forestry programme should aim at maintaining and improving agriculture within the desert by—

- 1) conserving the soil and moisture relations,
- 2) protecting farm crops, gardens etc. from critical hot winds,
- 3) producing wood products, primarily fuel, fence post, and rough lumbers,
- 4) protection of people and livestock from climatic extremes and living conditions in general.

I have enumerated some of the soil conservation problems facing our country today, but I shall be failing in my duty if I do not touch upon the recent floods which have brought untold miseries to the people of Bihar, Assam, parts of Bengal and Uttar Pradesh. The losses cannot be judged from the financial loss due to destruction of valuable property, but from the loss of human lives and its effects on the morale of the people which cannot be evaluated in terms of money. Here soil conservation measures probably can play a very important role for the prevention of this destructive menace to human life and property. It is true that as a temporary measure

the local flood-control engineering operations of the stream, namely, construction of levees, flood walls, floodways, equalizing reservoirs and similar devices will be useful but the permanent cure for floods will lie in a comprehensive programme of soil conservation in the entire watersheds of rivers and their tributaries. Soil conservation measures are, therefore, vitally important in all river valley projects not only for prolonging the life of the reservoirs but also for flood control.

I have mentioned only the broad problems of soil conservation in India which are receiving and will receive the attention of the Central Soil Conservation Board under my Ministry. But the implication of these problems is vast and varied and requires concerted efforts from scientists, technicians, educationists, lawyers, economists and social workers. It will require the co-operation of the public, the farmers and the publicists. As a matter of fact, everybody must be made 'soil-conservation minded' if we are to achieve any results within a reasonable time. In Nature soil is in equilibrium with its environment, and it must be treated according to Nature's own way for its conservation.

Every acre of land must be used according to its need and capability. Misuse of land will bring in its train disaster and misery. This living doctrine must be grasped and preached. Soil conservation is a way of life and it must be taught in schools and colleges. It must be impressed and enforced by demonstration, persuasion and legislation. We must provide for the people the information that will enable them to educate themselves on every phase of soil and water conservation adopted to their interests. Your Society must take the challenge of soil erosion and must work out ways and means of fighting this menace. Evolution of scientific methods of soil conservation must be based on over-increasing knowledge gained through your researches in different fields in soil conservation practices. I earnestly hope that out of your deliberations and efforts newer lights will be thrown on the subject for a solution of this mighty problem.

I may in conclusion also draw your attention to the discussion of some aspects of these problems at the recently concluded session of the Fourth World Forestry Conference. The valuable contribution that this Congress has made in this field alone would, in my view, justify the calling of this Congress in India, which is the first time it has been held outside Europe.

APPENDIX XIX

ARTICLE ENTITLED "AGRICULTURE UNDER THE FIVE YEAR PLAN" CONTRIBUTED BY DR. P. S. DESHMUKH, UNION MINISTER FOR AGRICULTURE TO "COMMERCE" BOMBAY.

The central objective of planning in India is to raise the standard of living of the people and to open out to them opportunities for a richer and more varied life. Agriculture being the mainstay of life for above 70 per cent. of the population and the source of many vital products, the Five Year Plan gives a high priority to its development.

Without substantial increase in agricultural production, it will be difficult to raise and sustain a higher temp of development in other spheres. Food and raw materials are the wherewithals of further development and raising of their production is of fundamental importance from the point of view of national economy. About 17 per cent. of the expenditure in the Plan is ear-marked for agriculture and community development and another 21 per cent. for multi-purpose and irrigation projects.

The Plan envisages an increase to the extent of 7.6 million tons in the production of foodgrains, 7.0 lakh tons in sugar, 4 lakh tons in oilseeds, 12.6 lakh bales in cotton and 20.9 lakh bales in jute. The targets of increased production of these commodities are expected to make good the shortages in food and raw materials created by partition as well as to meet the requirements of our growing population.

The achievement of the above targets required not only an extension of cultivation to new areas and introduction of technological improvements, but also called for the adoption of measures which would improve the psychology of the cultivator, give him an added feeling of security and create in him an incentive and determination to improve his agricultural standard and efficiency.

Thus, along with emphasis on improved tillage consisting of better seeds, better cultivation methods, better fertilizers and a more plentiful and assured supply of water, importance is also attached to the improvement of the patterns of land ownership and distribution, reform

of tenancy systems, organisation of co-operative action and development of suitable links between the cultivator on the one hand and sources of supply, research centres, and marketing organisations on the other.

Land Reforms

Already in a number of States steps have been taken for the abolition of intermediaries' rights in land, imposition of limits on holding subject to agricultural efficiency, consolidation of fragmented plots, fixation of fair and reasonable rents, protection of rights and interests of tenants in land, grant of facilities to the tenants to buy lands cultivated by them, and grant of lands to the landless.

To encourage the growth of co-operative action, special concessions in the allotment of loans, agricultural lands and agricultural requisities are being given to the co-operative societies in a number of States. The Central Government has set up a central committee for co-operative training for formulating plans and for organising and directing arrangements for the training of the co-operative personnel. Special attention is being paid to the development of extension services in the various States. A scheme estimated to cost Rs. 3.7 crores has been launched by the Central Government to improve training facilities for the village level worker.

In the physical and technological spheres, the need of keeping adequate areas under forests and pastures and the difficulties involved in the reclamation operations act as limiting factors to the extension of cultivation to new areas. Thus, only a limited reliance is put on this method.

Intensive cultivation

A major part of the increase in production is sought to be achieved by more intensive cultivation of the existing areas. Accordingly under the Plan programmes of irrigation have been assigned a high priority. A sum of Rs. 469 crores has been ear-marked for multi-purpose irrigation projects and another Rs. 45 crores for minor irrigation work, tubewells projects, etc. Besides under G.M.F. and Community Projects programmes also some minor irrigation schemes are undertaken.

Provision has also been made for propagating the use of better manures and fertilisers, better seeds and plant protection practices. The success of the new techniques is

already an accomplished fact and the over-all effect is so striking and obvious that there is no doubt that the object of increasing production is being steadily attained.

Land Reclamation

Taking first the measures for the expansion of cultivation to new areas, in the first three years of the Plan, about 8.06 lakh acres of waste lands in the four States of U.P. Madhya Pradesh, Madhya Bharat and Bhopal have been reclaimed by the Central Tractor Organisation as against the five year target of 14 lakh acres. During the same period, the State tractor organisations have reclaimed an area of 4.21 lakh acres in U.P., Madras and Madhya Pradesh, while 2.5 million acres have benefited from various schemes of contour bunding, soil conservation, drainage, etc., which are in operation in different States.

The pace of progress by the State units could be faster but for certain drawbacks under which they are labouring. For example, the State units are not yet properly organised and most of them are either incurring losses or are quoting rates which are not attractive to the cultivators.

Minor Irrigation

Measures for the improvement of irrigation facilities consist of minor irrigation works, tubewells projects and major irrigation works. In the case of minor irrigation works, about 79 per cent. of the target had been achieved upto 1953-54. As against 11.2 million acres programmed for the Plan period, 8.8 million acres have been brought under cultivation during the last three years as a result of construction and repairs of various minor irrigation works, like wells, pumping installations, dams, channels, tanks, etc.

Further, a programme is also in hand under the U.S. Technical Co-operation Programme for the construction of 2,650 tubewells and drilling of 350 exploratory tubewells. Under it, 1100 tubewells have been drilled and 668 completed during the last three years. The Site Selection Committee for exploratory tubewells has visited four States in the country and orders for equipment have been placed. Besides, TCA projects, State Governments such as those of U.P., Bihar and Bombay have large programmes of their own for the departmental construction of tubewells, and some of them have also been assisting private parties and co-operative societies with loans and grants for tubewells construction. The co-operative societies in

U.P., for example, have completed 232 tubewells in the first three years of the Plan. In Bihar and Pepsu 36 and 72 tubewells have been constructed by private parties respectively.

The programme of major irrigation works in the Five Year Plan forms part of a long-term objective, namely, the doubling in a period of 15 to 20 years of the area under irrigation. As a result of the completion of the larger irrigation schemes in the Plan, more than 2.8 million acres have already been brought or are being brought under additional irrigation.

Greater Fertilizer use

The efforts to encourage the production and use of better manures and fertilizers are also bearing fruit. The production of compost from night soil and other refuse in the urban areas has been increasing from year to year. It has gone up from 14.03 lakh tons in 1950-51 to 18.50 lakh tons in 1953-54. In rural areas, particularly in the Community Projects and National Extension Block composting of farm-yard manures and other waste materials is becoming increasingly popular. Nearly two to four lakh compost pits were dug in areas covered by Community Projects during the period of 18 months. Besides, schemes have also been initiated in a number of States for using underground sewage water and by-products of slaughter houses, particularly blood meal for manurial purposes.

As a result of their growing popularity, chemical fertilizers which had to be stocked once are now in short supply. The progress is specially marked in case of ammonium sulphate. Against about 2.7 lakh tons used in 1950, the consumption in 1953 is estimated to have gone up to 4.2 lakh tons. The demand for 1954 is still larger and imports to the extent of one lakh tons have been planned to meet the increased requirements. There is no doubt that the target of 6.1 lakh tons set in the plans for 1955-56 will be realised if adequate supplies can be arranged.

Experiments have also been undertaken to find out the suitability of other fertilizers under Indian conditions. The Central Government have under the T.C.A. Programme obtained about 14,000 tons of new fertilizers such as urea, ammonium nitrate, for experimental purposes. However, the consumption of phosphatic fertilizers which ranges from 30,000 to 40,000 tons has not kept pace with the increases recorded in the use of nitrogenous fertilizers.

The use of improved seeds has also been steadily increasing every year and almost all the States have a programme for the distribution of improved seeds. About two lakh tons of improved paddy, wheat and other food-grains seeds were distributed during the last three years. The area covered aggregated 22 million acres or 8.4 per cent. of the total area under foodgrains.

Plant Protection

The importance of adequate measures of plant protection cannot be over-emphasised. Most of the Part 'A' and Part 'B' States are now maintaining Plant Protection Organisations and certain amount of equipment for meeting day-to-day requirements. Steps are, however, being taken to set up a central pool of plant protection apparatus, pesticides and other equipment so that the States may supplement their resources by borrowing from the pool in time of emergency.

The methods of locust control have been modernised and new techniques have been evolved. The use of hand-operated dusting and spraying machines has been reinforced by power-operated machines mounted on jeeps and trucks, and aerial dusting and spraying have also been employed since 1951 to supplement operations. The measures of success achieved may be judged by the fact that in spite of widespread and heavy breeding, no large scale swarms have developed in India since 1952 and swarms mostly came from Arabian countries, viz. West Pakistan.

Preventing Soil Erosion

Mention may also be made here of the measures being taken to prevent soil erosion. A Central Soil Conservation Board was set up by the Central Government in 1953 to organise, co-ordinate and initiate research in soil conservation, to assist the States and river valley authorities in drawing up schemes of soil conservation, to arrange for the training of technical personnel and to recommend financial assistance for schemes of State and river valley authorities.

The Board has already decided to start seven regional training, research and demonstration centres and has also approved seven schemes of the State Governments for

execution in 1954-55. The Board is taking steps also to mobilise the Kutch desert and coastal sands and for the afforestation of the U.P. and Rajasthan border. Also, 17 States of the country have organised Land Utilisation and Soil Conservation Boards.

Plan Targets Exceeded

The increase in acreage and production which has occurred in recent years shows the effectiveness with which the above measures are being implemented. The area under major agricultural crops has gradually increased from 287 million acres in 1950-51 to 310 million acres in 1953-54. The latter figure exceeds the planned target for 1955-56 by 12.9 million acres. A part of the increased production is due to favourable weather conditions, but there is no doubt that but for the planned efforts for more intensive cultivation of land the increase in output would have been much lower. .

The production of foodgrains in the country has steadily gone up since the introduction of the plan and in the third year of the Plan has exceeded the target laid down for the year 1955-56. Output during 1953-54 has aggregated 66.0 million tons, thereby showing an increase of about 12 million tons over the base year 1949-50. The achievement in 1953-54 is 4.4 million tons higher than the target envisaged for the year 1955-56.

The Planning Commission is of the view that out of the total increased production of foodgrains, something like five to six million tons represent a more or less permanent gain which will be retained in an "average" year.

The highest increase in production (3.8 million tons) has occurred in the north-west region. The output has gone up by 2.6 million tons in the central region and 1.8 million tons in the eastern region.

All major cereals show increase

The increase in the total output of foodgrains is shared by all the major cereals. The targets for 1955-56 have been exceeded in the case of coarse grains and gram and pulses, while rice output has almost touched the five year target.

The increases in the production of principal cereals and the targets of additional production for the five year period are as under:—

	Additional production in 1953-54 over 1950-51	Million tons production laid down for the five years period in the Plan.
Rice	3.91	4.0
Wheat	1.50	2.0
Other cereals	4.70	0.6
Grams and pulses	1.86	1.0
TOTAL	11.97	7.6

In the case of oilseeds also production during 1953-54 has exceeded the five year target. In the Plan, an additional production of 4 lakh tons is envisaged. The output of 5.59 million tons obtained during 1953-54 has exceeded the target by 1 lakh tons. The question of raising the Plan target is now under consideration.

The achievements in case of cotton are also quite encouraging. There has been a gradual increase in cotton production, and 80 per cent. of the target has been achieved during 1953-54. The output during that year amounted to 3.94 million bales as against 2.91 million bales in 1950-51. Not only there is an increase in the overall production of cotton, the share and output of long staple varieties has also been going up from year to year. Between the base year 1950-51 and 1953-54, the area under long staple varieties increased from 3.4 million acres to 6.0 million acres (i.e. by 77 per cent.).

Jute and Sugarcane

The output of jute and sugarcane has shown an erratic trend. In the first year of the Plan period, mainly as a result of the high prices, sugarcane acreage and production increased considerably, so much so that the production of crystal sugar reached an all-time record of 15 lakh tons. The production of jute also increased by about 13 to 14 lakh bales during the first two years of the Plan. However, adverse weather conditions in the growing areas and the fall in prices since the end of the Korean War have caused a set-back in the pace of progress.

Fully aware of the need of increasing output of jute and sugarcane in the country, the Central and State Governments and the Commodity Committees concerned are trying to grapple with the situation. In 1953, the

Central Ministry of Food and Agriculture appointed an expert Committee for improving the quality of jute and reducing its cost of production. In order to implement the suggestions of the Committee, the amount provided in the Plan has been raised from Rs. 50 lakhs to Rs. 80 lakhs. To give a fillip to the production of sugarcane, a scheme for supply of ammonium sulphate to the cultivators against payments to be made after harvesting is being introduced in the major sugar growing States.

Easing Supply Position

Increases in the agricultural production in the country have led to an easing of the supply position, decline in prices and saving a foreign exchange. The easing of the food situation has permitted the controls, which it was thought would have to be retained throughout the period of the Plan, to be gradually relaxed, and with the lifting of restrictions in respect of rice in July last to be practically dispensed with altogether. In respect of wheat, there are still some restrictions on inter-zonal and inter-State movement over a small area; otherwise all controls have been lifted and the procurement of wheat and coarse grains has been completely given up.

Thus after a period of more than ten years, the irksome system of food controls has disappeared and austerity measures have been abandoned. The consumer can now buy large quantities of foodgrains and also has a wider choice of varieties. The improved supply of oilseeds has led to a considerable fall in the prices of oilseeds and oils—a distinct advantage to the consumer and also to the Vanaspati industry.

Foreign Exchange Savings

The savings resulting in foreign exchange as a result of reduced dependence on imports are a valuable gain to the country. The foreign exchange released as a result of reduction in imports can be used for accelerating the pace of economic development in other spheres. For example, as against a quantity of 4.7 million tons of foodgrains imported during 1951, the imports during 1953 were only of the order of 2 million tons. Thus, there was a saving of foreign exchange to the extent of Rs. 130 crores from reduction in the value of foodgrains imports in one year alone. The savings resulting from reduced imports of cotton come to Rs. 48 crores during 1953 as compared to imports in the year 1951.

Aided by favourable monsoon, the programmes for increasing agricultural production have taken firm root. Effective demonstration of these programmes in the earlier stage has given a fillip to their adoption at an accelerated rate during 1953-54 and the current year. The increasing facilities made available are already affording more opportunities to the tiller of land to turn to more remunerative crops. Thus better varieties are replacing the indigenous varieties at a more rapid pace in the expectation of better price and higher net returns.

Planning for increased standards

Under the first Five Year Plan, the objective has been to overcome the shortages in food and raw materials and ensure a certain level of consumption of essential commodities which in some cases approximate only to the pre-war levels. The increase in production at the end of the Plan period will be short of our requirements, if the balanced diet as laid down by the Nutrition Advisory Committee is to be provided. The next step is to plan for increased consumption standards of not merely cereals but of all protective foods, so that the standard of living of the people may be increased. Similarly, it is necessary to increase the production of commercial crops like cotton and oilseeds to meet the growing demand in the country as well as for purposes of export.

Second Plan

In fact, under the Second Five Year Plan, production of all important agricultural commodities will have to be raised further by the maximum possible use of manures and fertilisers, improved seeds, irrigation facilities, provision of improved cultural practices. While no doubt greater importance will have to be given to the development of industry under the Second Five Year Plan than in the first, the emphasis on agriculture will still have to continue.

APPENDIX XX

NOTE ON PROGRESS OF "GIR FORESTS RENOVATION WORK IN SAURASHTRA"

The area of Gir Forests Reserve is about 483.15 sq. miles. It is situated in the Southern part of Sorath District. The six principal rivers, viz., the Hiran, Sraswati, Sangavado, Machhundri, Raval and Popatdi are flowing from this forest. Due to maltreatment of these forests by over exploitation, over grazing and lack of effective fire protection, the area of Gir Forest has been completely eroded. There are vast blanks without tree growth. In order to fill up these blanks, a scheme has been drawn up and submitted to Government. It is likely to cost Rs. 3,92,000 annually.

2. This scheme is divided into two parts, viz., (1) Dealing with soil and water conservation measures and (2) Dealing with improvement of forests.

3. According to part 1, 20 lacs running feet of contour trenches over an area of about 2,000 acres at a cost of Rs. 40,000 will be taken up annually. Digging of 10 lacs pits is fixed as annual target which will cover nearly 1,000 acres. It is likely to cost Rs. 20,000. It is envisaged that annually about 3,000 dry rubble masonry check dams at a cost of Rs. 90,000 will be constructed. Small pucca dams at a cost of Rs. 70,000 will also be constructed where necessary. It is intended to train Saraswati river in order to change her course and a sum of Rs. 20,000 will be provided for this work.

4. Part II deals with the improvement of Gir Forests. Under this head, re-afforestation programme in 3,000 acres annually will be taken up. For this purpose two permanent irrigated nurseries will be started at a cost of Rs. 13,500. Planting programme will be taken up in the blank hills and devastated areas of 3,000 acres and it is likely to cost Rs. 45,000. For the cultural operation and thinning in the young coupes, a sum of Rs. 12,000 has been provided in the scheme. Young coupes will be regenerated and thinning will be done in the coupes where the sappling crop has become too much congested. A sum of Rs. 15,000 is provided in the scheme for fire protection, including fire

lines. It is proposed to spend Rs. 20,000 on development of roads and inspection paths in Gir Forests under this scheme. For the implementation of the scheme an additional establishment of six Foresters and six Forest Guards will be required. A sum of Rs. 11,500 will be needed for this additional establishment. Two jeeps and two pumping sets are also provided in the scheme. For this purpose a sum of Rs. 32,000 is provided in the scheme.

APPENDIX XXI

COPY OF REPORT OF SHRI HARDAYAL SINGH, M.L.A., ON
CHINI TEHSIL, MAHASU DISTRICT (HIMACHAL PRADESH).

CHINI AND ITS PROBLEMS

One of the most neglected parts of Himachal Pradesh is Chini, a Tehsil of Mahasu District touching the border of Tibet. Of late, particularly after the establishment of popular regime in the Pradesh one hears a lot about Chini and its problems and how the Government proposes to tackle them. Nevertheless, it is a pity that as much attention is not being paid to certain very under-developed areas as they deserve. The state Five-Year Plan too has little provision for development works in most backward areas like Chini, Pangi and Rampur Tehsils. It seems the plan was conceived haphazardly with a little regard for placing of priorities which must form the back bone of any development plan. It is gratifying to note that the Chief Minister is now paying more attention to such areas and acquiring first hand knowledge of their problems by visiting them. I had since long desired to visit Chini and see things for myself. So when the Chief Minister decided to go up, I also thought it proper to catch hold of the opportunity and accompanied him in his tour. We left Rampur on the 2nd September on about a three weeks' tour of the area and went up to Shipki La (Pass) the border point. This tour has helped us a lot in gaining first hand knowledge about Chini and its people.

Touching the Western Tibet border, and bounded by Spity on the North, Tehri Garhwal on the South and Kulu on the West Chini Tehsil has a vast area of 2,300 sq. miles with difficult mountainous terrain. The climate beyond Wangatoo—a place about 45 miles from Rampur, is all dry, the region getting no rains. The flora and fauna too starts undergoing a change from this place, and this is distinctly noticeable beyond Jangi, a place about 20 miles from Chini, the Tehsil Headquarters. Between Chini and Jangi one passes through a big forest of Chilgoze trees. Later on the whole terrain up to Shipki La, the border point is barren and rocky with no vegetation except a few shrubs known as Ephedra here and there. The only green spots one finds will be round the villages where water for irrigation

is taken in small water channels known as 'Khuls'. The National highway—Hindustan Tibet Road passes through the Tehsil right up to the border point. This road has played a very important role in putting the Indo-Tibetan trade on sound footing, for it is by this road that the Western Tibetan goods reach Rampur, their outlet, and our goods reach Western Tibet via Shipki. There are P.W.D. and Forest Rest Houses all over the road right up to the last village on the border, i.e., Namgia. Here the Rest House is very beautiful and charming. The land at present with very little irrigation facilities is not so productive. The main produce is 'Paphara', 'Ogla', 'Cheena', kinds of millets and Barley. Wheat too is grown. The crops are not sufficient to meet the needs of the whole year and they have to supplement it by taking boiled 'Chulies'—wild apricots which is found in plenty. A large number of people have to migrate down to the lower hills or plains in winter months for want of food and fodder for their cattle and sheep. Fruit is grown in abundance. Being a dry zone, grapes, peaches, walnuts, apricots and plums grow in plenty. Apples and pears too are found.

At Maleothi Dhar—beyond Sarahan you enter the 'Kinner Dosh'. Some people are of the opinion that the inhabitants of this area are 'Kinnars', an historical tribe, which fact is doubted by many others. The dialect spoken is Kanawari, having its roots mostly in Tibetan and Sanskrit. This dialect also under-goes a change in the border villages. The people are a charming lot with a great love for flowers and music. One finds all from a child to an old man putting on flowers in their caps. Ladies and gents, young and old all sing in chorus and dance together. A demand submitted to the Chief Minister by ladies for rescreening some documentary films at Jangi was made in a song composed and sung by the ladies of the village. Women play an important role in the social and economic structure, in this part. They not only attend to the household affairs, but also put in hard labour in the fields as well as work as mazdoors. One significant thing about the people is that in spite of their hard life and utter poverty they are cheerful and face all the hardships with a smile in their faces. They have an optimistic outlook and are not despaired of their future. When they sing and drink together they can easily forget their worries. It is in this spirit of theirs that I foresee the foundations of a bright future for them. The polyandry system of marriage is prevalent. More than one brother, have one wife in common. The reasons for the existence of this system are economic. The desire to limit the size of the family and to

keep the family estate free from division are the main reasons for the existence of polyandry. This system is now slowly dying out. The institution of 'Jamons' Buddhist nuns is prevalent. The Jamons enter the order of Buddhist nuns and are required to lead a life of celibacy. They stay at their parents and work for them. It is just possible that in some cases it is out of the spirit of renunciation that they join the institution of Jamons' but in my view in most of the cases the reasons are to be sought elsewhere. The institution of polyandry has a lot to do with it. Paucity of good husbands drive many young girls towards this renunciation. Some Jamons are well read in Tibetan language.

The Culture here is a curious mixture of the Tibetan and Indian Cultures. The influence of Tibet in songs, art and dances is sufficiently patent and discernible in the border areas particularly Kanam, Poo and Namgia. Most of the villages have a Buddhist temple each and in some there are Buddhist Libraries too. Lamas wield a great influence with the people. Brahmins are conspicuous by their absence. The 'Devil Dance' of Lamas at Kanam and Poo, we witnessed, was quite interesting. The people are very superstitious and have great faith in evil spirits and gods etc. At the entrance of every village there are heaps of stone with 'Mantras' carved over them to scare the evil spirits away from the village. Nearby the stone is a big gateway in the ceiling of which are painted Mantras in Tibetan. Everyone has to pass through this gate bare headed.

The people are quite hard working and imaginative. It is said 'Necessity is the mother of Invention'. This is quite true of this area. The Nature here being what it is rough and unkind, the people have done their best, with-in their limited resources, to devise methods of fighting against it.

The Road to Shipki passes through the Satluj Valley. From 3,500 ft. at Rampur, this road takes us gradually to a little over than 12,000 ft. at Shipki La. On the way you witness beautiful scenery with high snow-clad peaks in front and fir and Deodar trees on either side of the road. At places it negotiates its course through solid and difficult mountain rocks, where the way has been made by cutting the hard rocks. At places the Satluj is just 3,000 feet right below. Chini, the tehsil Headquarters is a small village with beautiful surroundings. Facing it is the lovely Kailash peak, the abode of Lord Shankra. It is a Stone

pillar standing against the clear blue sky and it changes colours according to the course of the sun—white at sunrise, orange colour at Noon and white again in the evening. By the side of Kailash is the Roldang peak 21,000 ft. above the sea level, below which is a beautiful glacier of snow. The suspension bridge over the Satluj at Dubling, by which we cross over to Namgia, the last village on the border is nice. It is about 200 feet above the riverbed and is supported by huge rocks. The other valley in the Tehsil is Baspa. It is a wide, beautiful valley through which passes the Baspa river. Sangala is a lovely spot therein. In Baspa river are found the finest trout fish. Sangala is not only attracting for its scenic beauty but is also a paradise for anglers. It is high time that the Government pays heed to provide facilities for tourists. Blankets must be kept in each rest house and some arrangements for the provision of Ration and other supplies must also be made at each stage. The Rest Houses at Kanam and Poo also need immediate special repairs. Adequate crockery and cutlery must be supplied to the Rest Houses.

The main problems facing this area can be divided into the following categories:—

- (1) Shortage of Foodgrains.
- (2) Lack of means of communication.
- (3) Migration of a large part of the population to lower hills and plains during Winter months.

All these three problems are inter-linked. There are other minor problems too. But on the solution of the above three categories of difficulties depends the future prosperity of this Tehsil. The area has vast potentialities, particularly in the field of dry zone fruits growing, and their proper exploitation will usher in an area of prosperity for the poor simple inhabitants. Considering the enterprising spirit of the people one can envisage a bright future for them. It is high time that the Government pays immediate attention to this illaqa. The need becomes all the more urgent in view of the recent political developments across the border in Tibet. We cannot afford to be complacent. I shall now take the problems one by one and suggest ways and means of solving them:—

1. *Shortage of Food-grains*:—Chini is a deficit area so far as food is concerned. At present the staple diet there is Barley and some millets like "Paphra" and "Ogla" and

some boiled Chulies i.e. wild apricots. From nutritive point of view too, it is very poor. Even this does not suffice for the whole year and thus it is one of the main factors which compels a big populace to move down to the plains and lower hills in winter. There being no rains, crops cannot be grown without irrigation facilities. At present whatever little land is under cultivation it is irrigated by small water channels dug by the villagers themselves. The present food production can only be increased if more irrigation facilities are provided. Water is precious here, it is the very life of the people. Wherever we went demand for providing canals was repeated. How much importance is attached to water can be understood by the fact that in village Moorang a Six-mile channel from the top of mountain is being dug by the villagers, in which they have also invested a good deal of money. This enterprise of theirs is commendable and deserves to be encouraged by the Government. The illaqa is lucky enough in having a number of big water streams, wherefrom canals can be taken and they will not only provide increased irrigation facilities to the existing cultivated land but shall also bring in more land under plough which at present is lying as cultivable waste. The only big irrigation project in hand at present is the Bektu Kuhl which will irrigate the area around Chini. It will be seven-mile long canal with a vast cultivable area under it. A few more similar projects will solve the food problem to a large extent. Irrigation and road construction must be given top priority.

2. *Lack of means of Communication*:—One of the biggest hurdles in the way of development in Chini is the lack of means of communication. At present goods are carried on mules, ponies and mostly on pack goats commonly known as "Ladoos". There is no motorable road. The construction of a motorable road to Chini has already been taken in hand. It is a big job. Hard and steep rocks running into miles will have to be blasted and cut in the construction of this road. Our young engineers are quite optimistic and are doing a commendable job. They lack the necessary machinery particularly air compressors without which large scale blasting is impossible. I understand that a number of compressors are lying at Simla. Arrangements must be made to send them on immediately. With motor traffic will be opened up a vast area which can supply to the country dry zone fruit in large quantity. Grapes, plums, peaches, walnuts, apples etc., which grow

in plenty, cannot be exported at present for want of means of communication. Grapes etc., these days are used for distilling the famous drink "Angurie". Most of the fruit go waste. So long as export facilities for fruit are not available the Government should install a distillery here to produce finer drinks. With the opening of motorable roads the economy of the illaqa will undergo a revolutionary change. It will mean prosperity for the poor.

3. *Migration of a large part of population to lower hills and plains during winter months.*—A greater part of the population along with their sheep and goats migrate down in winter months. The main reasons for their exodus are paucity of food for themselves, and fodder for their goats and sheep. The very idea of the people being forced to leave their homes for want of food and fodder is really very unpleasant. In my view this exodus shall have to be stopped. This can only be achieved if the people are certain that they would get adequate food and fodder supplies at their homes. I have already mentioned above how new irrigation schemes can solve the food problem to a large extent. As regards fodder, the Forest department shall have to come forward and grow poplar and willow trees in large number. These two varieties provide good fodder for the sheep and goats. Roundabout the villages the people too have started growing them. They will not only provide fodder, but shall also be instrumental in checking erosion, which takes place in Winter. Besides making provision for food and fodder the people shall have to be provided with work during winter months. Development of cottage industries can solve the problem. While keeping them engaged, it will at the same time provide a second string to their bow and add to their income. These days too spinning and weaving is done but it needs to be rationalized and improved. The Government must pay immediate attention in this direction.

4. *Horticultural Development:*—The State Agriculture Department has a very significant role to discharge in the development. As stated above the area is ideally situated for dry fruit cultivation. What the Agriculture Department has to do is to provide better variety of grapes, peaches, plums etc., so that they can find easy market. The varieties at present grown are not so fine. The start should be made from now onward so that by the time it is linked by motor the new varieties are ready. Chini can export so much fruit that there will be no need to import them from Quetta etc.

5. *Fisheries*:—The fisheries Department should look after the fine trout fish in Baspa River. It is a pity that the department has done nothing there so far.

6. *Grazing Policy*:—There was a general complaint about the excess of the grazing tax known as Rahdhari, which the people have to pay for their goats and sheep in the lower hills. Efforts should be made to bring it on uniform basis. It is high time that the Government take a final decision about their grazing policy. The problem of soil erosion has already touched huge dimensions. How long unfettered grazing by owners of huge flocks can be permitted shall have to be seen. The sooner the grazing policy is finalized the better it is.

7. *Nautors*:—There was a general demand for grant of Nautor lands. There are many patches of land which can be given as Nautor. Nautors lands can be useful only when irrigation facilities are extended.

8. *The Hangrang Valley*:—The Hangrang Valley lying between Spiti and Tibet is fertile and level. Though we could not visit the valley, yet we heard a lot about the people there. I met a number of persons from Hangrang who have come down to work as labourers. We heard a woeful tale of their misery, and suffering. They are being exploited by absentee land-lords and money-lenders. Most of their land stands mortgaged with the blood-sucking money-lenders. The rate of interest is exorbitantly high and the method of reckoning is still worse. The Government should pay special attention to this illaqa and depute an officer on special duty to study the situation there. It is our weak spot on the border.

There is a fear that with the opening of roads and establishing of outside contacts the poor, simple, unsophisticated folk might not be spoiled by their more sophisticated, clever and shrewed brethren coming from below. They have a culture, a tradition of their own, with many bright aspects. This culture and tradition shall have to be preserved from the outside spoiling influence.

Chini has a bright future with consciousness in the people of their new status and opportunity and with reborn zeal and fervour unsubdued by the rigours of nature and time and with their enterprising and co-operating spirit,

this land of theirs is bound to march forward on the road to progress. The masses are all enthusiastic and prepared to help the Government in pushing through their development schemes. It is now for the Government to channelize this enthusiasm towards appropriate ends.

- APPENDIX XXII

NOTE ON SUGARCANE RESEARCH AND DEVELOPMENT WORK CARRIED OUT UNDER THE AEGIS OF THE INDIAN CENTRAL SUGARCANE COMMITTEE.

RESEARCH.

Varietal Trials.

In the varietal trials in U.P., the varieties Co. S. 430, Co. S. 443, Co. S. 470 and Co. S. 510 were found most suitable from sugar manufacturing point of view. In North Bihar, B. Os. 28, 17, 30, 22, 29 and Co. 419 showed outstanding growth performance, whereas in South Bihar B. Os. 25 and 28 and Co. K. 32 are doing well. In Punjab Co. J. 35, S. 470/51 and S. 120/51 in the late set and Co. J. 36, and S. 294/50 in the early set were found outstanding in the matter of general growth and vigour. In Bombay Cos. 649, 684, 740, 744, 775, 678, and 798 were found more vigorous in growth than Co. 419; Co. 798 being the best of all. At Nellikupam (Madras), the juice quality of Co. 527 and Co. 449 was found to be definitely richer than that of Co. 419. In Andhra, Co. 974 was the most vigorous variety with a height of 65.62" followed by Co. 967 with 65.44" in July, whereas in August Co. 527 recorded 95.0" of height against 92.2" height of Co. 419. At Rudrur (Hyderabad), the hand refractometer indicated Co. 744 and Co. 795 as the best varieties with 16.9% bricks as against 14.0% of Co. 419 in August. At Hospet (Mysore) Co. 449 proved more vigorous than Co. 419 in the early stages, but Co. 419 picked up by the time, the monsoon got started. At Jorhat (Assam) Co. 661 and Co. 615 gave significantly higher yields in ratoon canes over the standard variety Co. 419.

Manurial and soil studies.

The combination of ammonium sulphate and groundnut cake, 30 lbs. each per acre broadcast before planting gave the highest yield in U.P. The uptake of nitrogen was the highest in 60 lbs. N. groundnut cake applied as broadcast before planting, while the uptake of phosphates was the highest in ammonium sulphate 60 lbs. N. per acre broadcast before planting. The introduction of *Sanai* green-manuring in the long term NPK experiment resulted in a

marked increase in cane yield. At Kullitalai (Madras) *Sesbania speciosa* as green manure with 200 lbs. N. has produced the best juice quality in the cane crop, whereas in the case of *daincha* and sunnhemp 150 lbs. N. with green manure has shown better juice quality.

Pests and Diseases.

In U.P. it was found that 3 per cent. and 5 per cent. BHC were equally effective, but 1 per cent BHC dust was not so effective in the control of *Pyrilla*. In the experiments on borer control in Bihar, Endrin was found to be the most effective chemical for protection against the 3 major borers of cane. In Punjab Endrin proved not only more effective, but more economical also than BHC for the control of *Pyrilla*. Recent reports received from Belgaum and Kolhapur districts of Bombay have shown that Co. 419 was also affected by rust. Vigorous control measures should be adopted.

Development

In U.P. 3524 implements were given and 45 miles of village roads and 287 bridges were constructed. In Bihar measures for the large scale eradication of Red rot were under way in the sugar factories areas of Bettiah Sub-Division, where both Co. 453 and B. O. 11 had been affected with the disease. In Punjab 857.95 tons of ammonium sulphate on taccavi basis, 41.975 tons on free distribution and 52.5 tons on cash were issued to the cultivators. In Bombay 215 demonstrations were organised for control of pests and improved method of composting. In Madras 3,47,200 seedlings of *Sesbania* and 4752 seedlings and cuttings of *Glyricidia* were planted around cane fields during the period under report.

In Mysore the winner of the first prize secured the highest yield per acre of 70 tons and 500 lbs. The acre yield of cane according to the random sample survey was 34.9 tons on an average in the Hospet area.

In the Development Zones of U.P. average yield of plant cane worked out to 469 maunds per acre and of ratoon canes 372 maunds per acre.

APPENDIX XXIII

INAUGURAL ADDRESS BY DR. P. S. DESHMUKH, MINISTER FOR AGRICULTURE ON 3RD DECEMBER, 1954 AT 10-30 A.M. ON THE OCCASION OF FIRST CONFERENCE OF DIRECTORS OF LAND RECORDS, AGRICULTURAL STATISTICIANS AND AGRICULTURAL ECONOMISTS HELD ON 3RD AND 4TH DECEMBER, 1954.

I am very happy to inaugurate this Conference of Statisticians and Economists who are meeting here today to discuss various problems relating to the collection and analysis of agricultural statistics and the widening of our knowledge on the economic aspects of the agricultural life of the country. I need hardly stress its importance. Among other things the future plans for progress along several directions will depend upon it. Time was when the administrator and the policy maker could go comfortably forward on the basis of a few general guiding principles which set the limits to policy in respect of the collection and maintenance of revenue, administration of law and order and maintenance of and the needed adjustments in trade which would facilitate export and import of major articles in demand in foreign and internal markets. Improvement of agriculture was viewed as a means of increasing public revenue and augmenting the supply of goods which entered into trade. Settlement of land and definition of landed rights were undertaken primarily to fix responsibilities for payment of revenue. The maintenance of record of rights, reform in tenurial arrangements, collection and compilation of land-use-statistics and the welfare of the agricultural classes thus came to be primarily the responsibility of the revenue authorities in the districts. The Agriculture Departments contented themselves with experiments and research in technological improvements, mostly confined to laboratories and specially maintained farms, and were thus out of touch with the main stream of agricultural life. At the Centre, agricultural statistics were treated as a part of commercial statistics and the Economic Adviser attached to the Ministry of Commerce was responsible for tendering advice on agricultural economic problems as well.

2. The last few years, particularly after Independence, have witnessed a fundamental change, both in the objectives of government policy as well as in the status and rights of the common man. Where formerly policy had relied on fiat and compulsion, it has now to proceed by reasoning and conviction. Every project, every public measure has to be justified at the bar of public opinion. The old hit or miss method of solving problems has come to be replaced by careful analysis of the consequences of past action which serves as guide to judgements about the probable consequences of prospective acts. With the acceptance of the ideal of the Welfare State, every overt act designed to accentuate development has to be judged not merely in terms of physical output, but in terms of the relation such output will bear, both in the process of its making as well as in the result, to the weal of the common man.

3. This has made the task of the Statistician and the Economist one of great responsibility calling for the exercise of the highest judgement in the collection and analysis of factual data bearing on public issues and their interpretation in terms of cause and effect. An omniscient economist sitting above all departments of public activity and keeping an over-all eye on the general economic position would no longer satisfy the specialised demands of each sector of organised life. Agriculture in any case represents such a large part of Indian life and is of such basic importance that its claims to continuous specialised treatment could be ignored only at the peril of the country's future welfare and progress.

4. It is a perception of this need which brought the Directorate of Economics and Statistics into existence in the Ministry of Food & Agriculture. Ever since its inception it has fulfilled a very important need and has functioned as the eyes and ears of the Ministry on all economic problems affecting agriculture. It has helped the Ministry to keep a watch on the trend of events, assess situations on the basis of scientifically analysed facts and lay down the goals of policy in specific directions. In the few years of its existence, a good deal of very useful work has been done in improving the range and scope of agricultural data and in their systematisation and refinement for purposes of practical application to current problems.

5. It must be admitted, however, that we have still far to go before we can say that we have a body of classified data ready to hand covering the entire range of our needs in the sphere of agriculture. Much still remains to be done to extend the geographical coverage of land utilisation statistics, improve their reliability, bring the production of protective food and other minor crops within their scope, collect statistics of areas under improved practices and evolve scientific procedures for collection of data on a uniform basis so as to facilitate assessment of progress and comparability. How best we can go forward in these directions, and what place this important subject should hold in the Second Five Year Plan are matters on which this Conference will have to deliberate.

6. India is, however, such a vast country with such enormous range of variations in all aspects of economic and social life and natural conditions that it is unsafe to rely on aggregate data and averages as tools of economic prediction. Responses to economic and social measures, even where physical conditions are similar, vary so widely due to differences in cultural and historical values that neatly packaged solutions capable of producing uniform reactions are hardly ever available. In the sphere of social analysis there is a profound connection between the formulation of a problem and its co-relative solution. Even for formulating the problems, therefore, studies may have to be conducted into causes of changes in economic phenomena which would help to throw into relief drifts in circumstances leading to particular situation or stage of progress of the economy under investigation. Further, in the context of planned development, policy making has to be an organised effort at bringing the discrepancy between existing situations and an assumed goal, and the tools of policy implementation have to be carefully devised to meet immediate necessities without endangering long-period objectives of economic and social progress. There has to be a continuous and coordinated process of collection and systematisation of knowledge pertaining to developments in agricultural economy, and a regular machinery should be devised for recording the farmers' reactions to various measures of reforms already instituted. Research on agro-economic problems has to be a regular part of policy-making at every stage and has, therefore, to be so organised as to be purposive and closely related to needs. I am sure the programme of research now

being instituted by the Directorate of Economics & Statistics through the Agro-Economic Research Centres and the farm Management Studies proposed to be undertaken would fulfil this important need.

I wish the Conference every success.

APPENDIX XXIV

RECOMMENDATIONS OF THE FIRST CONFERENCE OF DIRECTORS OF LAND RECORDS, AGRICULTURAL STATISTICIANS AND AGRICULTURAL ECONOMISTS 3RD AND 4TH DECEMBER, 1954.

I. CO-ORDINATION OF AGRO-ECONOMIC RESEARCH

1.1 In view of the urgent need for

- (i) Co-ordination of research work undertaken by the Agro-Economic Centres and Farm Management Centres,
- (ii) co-ordination of research work done by Central Department, Central Commodity Committees, concerned Departments of State Governments, Universities and other Research Institutions,
- (iii) evolving a co-ordinated programme for research and conducting research necessary for the purpose, and
- (iv) reviewing the progress of research in the fields indicated and disseminating knowledge about it,

this Conference recommends that a high-powered Research development, land reforms—abolition of intermediaries, and Statistics, Ministry of Food and Agriculture.

II REVIEW OF COMPILATION AND PUBLICATION OF AGRICULTURAL LEGISLATION IN INDIA

2.1 This Conference notes with satisfaction that useful material on Agricultural Legislation in India has been compiled and brought out by the Directorate of Economics and Statistics, Ministry of Food and Agriculture, in the various volumes dealing with regulation of money lending, consolidation of holdings, agricultural production and development, land reforms—abolition of intermediaries, village panchayats, etc. In order to increase the utility of these publications, this Conference recommends that periodical supplementary volumes or revised editions should be brought out by the Directorate as and when necessary.

2.2 In view of the great importance of the problem of agrarian reforms, this Conference is of opinion that the State Governments should prepare annual reports on the working of the more important Agricultural Acts and furnish them to the Directorate. The Conference is also of opinion that the State Governments should conduct periodic surveys of the effects of the agricultural legislation through appropriate agencies.

2.3 This Conference is of opinion that it is essential that the Directorate of Economics and Statistics, Ministry of Food and Agriculture should keep itself informed of the progress of legislation and of the implementation of the Acts in this sphere. For this purpose, the State Governments should supply copies of all Bills, rules, orders, etc., relating to agriculture to that Directorate. The Agro-Economic Centres newly set up by the Government of India should also be encouraged and assisted to take up the study of the effects of important legislative enactments in force in the areas in which their main enquiries are proceeding.

III AGRO-ECONOMIC RESEARCH SCHEMES FOR THE SECOND FIVE YEAR PLAN

3.1 This Conference notes with satisfaction that four Agro-Economic Research Centres have been set up in Delhi, Poona, Madras and Shantiniketan and recommends that their number should be increased so as to cover adequately other typical areas of the country.

3.2 This Conference also recommends that the studies in the Economics of Farm Management should be extended in scope so as to cover all the typical regions of the country.

3.3 (a) In view of the importance of basic agro-economic data, this Conference recommends that the necessary amount of experimentation should be done by undertaking specific agro-economic research projects under the Second Five Year Plan.

(b) It also recommends for the same purpose, that State Governments which have not already done so, should set up agricultural economics sections.

IV. TIMELINESS IN THE SUBMISSION OF STATISTICAL RETURNS

4.1 To ensure timeliness in the submission of statistical returns and to remove the causes leading to delays therein, this Conference recommends that the work-load on the reporting agencies at different levels should be reduced to manageable proportions, wherever it is excessive.

4.2 This Conference also recommends that adequate supervision should be exercised by the supervising authorities to ensure that the time-table prescribed for the submission of returns at various levels is strictly adhered to. If necessary, adequate penalties should be provided for in the rules, for this purpose.

4.3 This Conference reiterates the recommendations made by the Conference of State Agriculture and Co-operation Ministers (1953), for the appointment of District Statistical Officers at the district level to assist in the timely submission of agricultural statistics returns. The Conference notes with satisfaction that certain States are already taking action in this direction.

4.4 Considering that delays in submission of statistical returns may also be due to the bottle-necks at the compilation stage, this Conference recommends that adequate staff should be provided for the compilation of the relevant statistical returns, at the different levels.

4.5 This Conference recommends that in view of procedural delays in the despatch of statistical returns to the Directorate of Economics and Statistics, Ministry of Food and Agriculture, e.g., want of approval or consultation with Secretariat Departments in the State, a provisional copy of the returns should be sent in advance to that Directorate.

V. STANDARDISATION OF BASIC FORMS FOR THE COLLECTION OF DATA

5.1 In view of the importance of adoption of standard forms for the collection of data, this Conference recommends that the State Governments should adopt annual standard forms as recommended by the Technical Committee on the Co-ordination of Agricultural Statistics. (1949).

5.2 This Conference also recommends that as the adoption of basic quinquennial form will provide all the data needed on cultivator's holdings, the State Governments should adopt this form so that the data are collected on a uniform basis.

VI. COMPARABLE ESTIMATES OF AREA AND PRODUCTION

6.1 In view of the importance of working out comparable estimates of area and production of crops and area under different types of land utilisation, this Conference recommends that each State Government should work out comparable figures after allowing for extensions or changes in the coverage of statistics, and improvements in the methods of estimation from 1947-48 onwards. For this purpose, Staff should be strengthened wherever necessary both at the Centre and the States.

VII. CO-ORDINATION OF DATA COLLECTED BY REVENUE AND OTHER AGENCIES

7.1 In view of the need for co-ordination of the data collected by State Revenue Authorities and other agencies, this Conference recommends that the question of reconciliation of the discrepancies between the different sets of figures should be examined by each State in respect of each item, *e.g.*, area under forests, area irrigated, and area and production of tea, coffee, rubber and tobacco.

7.2 With a view to reducing these discrepancies, this Conference recommends that:

- (i) there should be co-ordination between the concerned agencies collecting the information at the State level;
- (ii) there should be co-ordination at the primary level the primary reporters, *e.g.*, planters in the case of tea, coffee and rubber, submitting duplicate copies of the primary returns to different authorities at higher levels;
- (iii) there should be co-ordination in the periods to which the data relate and the points of collection;
- (iv) the definitions and methods of collection should be uniform; and
- (v) the uniformity in coverage should be ensured.

7.3 In cases where the discrepancies are of a fundamental character, this Conference recommends that necessary investigations should be undertaken immediately. Such investigations should be sponsored jointly by the concerned agencies in the Central and State Governments.

VIII. MAINTENANCE OF PROPER LAND RECORDS FOR THE COLLECTION OF AGRICULTURAL STATISTICS

8.1 In view of the importance of the maintenance of proper land records for revenue administration and collection of agricultural statistics in the four categories of areas, *viz.*,

- (a) areas cadastrally surveyed which possess annual land records;
- (b) areas cadastrally surveyed where annual records are not maintained;
- (c) areas unsurveyed but reporting; and
- (d) areas unsurveyed and non-reporting,

this Conference recommends that the objective to be aimed at should be to cadastrally survey the unsurveyed areas, to appoint reporting agencies where such agencies do not exist and to maintain proper land records in all the areas.

For this purpose, in category (a) areas, the land records should be maintained properly and accurately by enforcing rationalised supervision on the work of the primary agency, by reducing the work-load on the patwari and by training him in the new concepts and definitions and improved techniques of collection of agricultural statistics.

In category (b) areas, the State Governments should indicate the programme they have in view for the setting up of the necessary agencies for the aforesaid purposes.

The State Governments should undertake cadastral survey operations in areas falling in categories (c) and (d) and appoint reporting agencies.

IX. COLLECTION OF AGRICULTURAL STATISTICS FOR THE SECOND FIVE YEAR PLAN

9.1 This Conference recommends that one of the main objectives of improvement of agricultural statistics should be to ensure that estimates of acreage under principal heads of land utilisation as also those under different crops are available in respect of the entire geographical area of the country and estimates of agricultural production are obtained for the total area of land cropped. This objective should be achieved as early as possible by careful planning, at any rate, before the end of the Second Five Year Plan.

9.2 To meet the immediate need for the formulation of the Second Five Year Plan, this Conference, however, recommends that sampling technique should be adopted for framing estimates of land utilisation in the non-reporting areas.

9.3 This Conference notes with satisfaction that there has been noticeable improvement in recent years in the reliability of statistics of production of foodgrains due to the adoption of the objective technique of random-sampling crop-cutting surveys. In order to ensure reliability of the estimates of production of commercial crops also, this Conference recommends that random sampling crop-cutting surveys should be extended to these crops. Where the necessary technique has not yet been evolved, highest priority should be given to its evolution.

9.4 In view of the importance of planning for the increased production of protective foods under the Second Five Year Plan, this Conference recommends that steps should be taken to collect complete and reliable statistics of protective foods, such as, livestock products, fish and fruits and vegetables.

Besides, this Conference also recommends that estimates of production in respect of commercially important, though minor, crops such as cashew nuts, cardamom, cloves, niger seed, tamarind and by-products such as bran, husk, straw, etc., should be collected. For this purpose, suitable techniques of collection should be evolved on an urgent basis, in respect of these crops during the current Five Year Plan period itself. To meet urgent needs, however, tentative, estimates should be framed in respect of these products on the basis of *ad-hoc* enquiries, if necessary.

9.5 In view of the need for collecting data on improved farming practices, this Conference recommends that steps should be taken to arrange for regular collection of the same.

X. SCHEMES FOR SECOND FIVE YEAR PLAN

10.1 This Conference strongly recommends that the State Governments should prepare in consultation with the Directorate of Economics and Statistics, Ministry of Food and Agriculture, a co-ordinated programme for improvement of agricultural statistics and other agro-economic data and also analysis or studies thereof and that this programme should find a place in the Second Five Year Plan of the State Governments. In drawing up this programme, the recommendations of this Conference should be taken into account and the plans already drawn up, if any, should be reviewed in the light of these recommendations.

10.2 This Conference also recommends that the State Governments should include a chapter on Agricultural Economics and Statistics in their Second Five Year Plan indicating precisely what has been achieved so far and what is proposed to be achieved during the Second Five Year Plan period, and laying down the priorities for the different schemes.

10.3 This Conference recommends that necessary financial provision should be made by the State Governments in the Second Five Year Plan not only in respect of schemes which are likely to be financed from their own resources but also in respect of State part of the expenditure on schemes to be jointly financed by the Central and State Governments. The Central Government should also provide adequate funds for this purpose, i.e., both for undertaking methodological research in the techniques of collection and for assisting the State Governments to finance their schemes under the Second Five Year Plan.

10.4 This Conference further recommends that the State Governments should work out the total cost likely to be incurred on the implementation of the foregoing recommendations of this Conference and communicate the same to the Directorate of Economics and Statistics, Ministry of Food and Agriculture, by the end of January 1955, to enable them to have an over-all picture of the financial requirements.

APPENDIX XXV

SPEECH DELIVERED BY DR. P. S. DESHMUKH ON THE 3RD DECEMBER, 1954 AT 5-30 P.M. ON THE TENTH ANNIVERSARY OF THE ECONOMIC & STATISTICAL ORGANISATION OF THE MINISTRY OF FOOD & AGRICULTURE.

I have great pleasure in participating in this evening's function organised by the Directorate of Economics and Statistics to mark its tenth anniversary. A decade of fruitful activity does evoke a sense of fulfilment which legitimately deserves recognition. The Directorate, modelled largely on the pattern of the Bureau of Agricultural Economics of the United States Department of Agriculture, has during the last ten years, been able to establish itself on firm foundations. It has become an integral part of the Ministry which has come to rely on the services of the Directorate to an increasing extent.

The necessity for having an organisation like this engaged exclusively on objective study, analysis and interpretation of economic data, cannot be over-emphasized. This is particularly so far a Ministry which is concerned with the two vital problems of food and agriculture. Not only has a close watch to be maintained on the production and price trends of agricultural commodities for formulating day to day Government policy, but the repercussions of Governmental measures on the agricultural economy have also to be carefully assessed. This has become all the more necessary with the lifting of controls and the operation of the normal forces of supply and demand. Government have to feel, so to say, the pulse of the economy and this is not possible unless there are sufficient economic indicators which point the directions to which the economy is moving. These indicators are furnished by the Directorate on whose expert advice the Ministry have come to lean heavily.

It is but proper that the organisation engaged in the analysis and interpretation of data should also be entrusted with the task of their collection and compilation, so that the basic data relating to our agricultural economy can be built up on a uniform, all-India basis. The Directorate from its very inception has been engaged in this

task. Much of the comprehensiveness and reliability of agricultural data that we now possess, has been due not a little to the efforts of the Directorate. The reporting area has increased from 557 million acres in 1943-44 to 704 million acres in 1951-52. Forecasts are now issued for as many as 26 commodities as against 10 in 1943-44. The collection, compilation and processing of data relating to area, production and prices of agricultural commodities has now been put on a more scientific basis than formerly. By and large it is now possible to base policy decisions on more accurate data than what has been possible before.

I am glad to note that the Directorate has been steadily expanding its activities. Improvement of basic agricultural statistics is but one of the problems pertaining to our agricultural economy. There is also the whole complex of relationships arising out of the ownership and use of all the resources engaged in agricultural production. This has given rise to a host of problems, the study of some of which have been seriously taken in hand by the Directorate. Abolition of intermediaries, tenancy reform, consolidation of holdings, money lending, co-operative farming, measures relating to agricultural production and development have been the subjects on which the Directorate have brought out a series of volumes. They are of interest not merely for the layman but for the student and the research worker as well since they bring under a single compass the manifold legislation passed in the various States.

The Directorate, has also been engaging itself in organising field studies into agro-economic problems. The study of the economics of farm management which is being conducted at six selected centres, will furnish valuable data on farming as an enterprise. The four agro-economic research centres started in collaboration with universities and research institutes, will besides conducting investigations of an *ad hoc* nature, be making a continuous study of the changes taking place in the rural economy. Such evaluation of economic change can be expected to throw considerable light on the dynamics of our rural society.

There are two problems, however, on which I feel attention has to be focussed immediately. One is the impact of the various land reform measures on the rural economy. I have in mind, in particular, their effects on productivity and on the living standards in the rural areas.

The other is an evaluation of the merits of different types of farming organisation like co-operative farming and co-operative village management on which the Planning Commission have laid so much emphasis. I hope that with the establishment of a research branch, the Directorate will be able to initiate systematic enquiries into some of these problems.

While congratulating the Directorate on the completion of ten years, let me also remind the Directorate that success lies in the hard way and that it has continuously to improve upon the standards which it has already set up. I am sure that as the years go by, the Directorate will prove even more useful by its objective study of and disinterested advice on agro-economic problems.

APPENDIX XXVI

EXTRACTS OF D.O. No. 135935BIII/54-6, DATED THE 31ST DECEMBER, 1954 FROM SHRI M. BHAKTAVATSALAM, MINISTER FOR AGRICULTURE, FORT ST. GEORGE, MADRAS TO DR. P. R. DESHMUKH, MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA, NEW DELHI.

The weather during November 1954 was mainly dry except for showers which occurred locally at West Coast districts and at a few places in other districts. A depression formed in the South Bay of Bengal early this month and under its influence the North East Monsoon fortunately revived and there was widespread rainfall. The rainfall for December upto the 11th is said to be normal in Ramnad district, above normal in Chingleput, South Arcot, Salem, Tiruchirapalli and Tanjore district and below normal in the rest of this State. Withering of crops was reported in certain parts of North Arcot, Coimbatore and Madurai districts. Necessary measures were taken to check the pest attack in Chingleput and South Arcot Districts. The condition of crops in other districts were reported to be satisfactory. The second spell of rains, though delayed, has done much good to standing crops but pest attacks in several centres is rather disconcerting.

2. Another point which is engaging attention in the agricultural situation is the possible fall in the price of agricultural commodities. The index for November 1954 actually showed an increase by 1 point to 445 in respect of foodgrains but the index for commercial products declined by 1 point to 406. There is not likely to be any significant fall in the foodgrains index till the next rice harvest in January-February. However the prices of other commodities appear to be weakening, e.g. groundnuts are showing a slight decline. There is also a glut of jaggery and there is agitation for allowing liberal exports of jaggery outside India. The price situation requires to be carefully watched as can be inferred by the observations made by more than one Member at the Meetings of the Governing Body of the Indian Council of Agricultural Research on the 15th of this month.

3. You have given interesting details regarding the consumption of fertilisers in South Korea and Formosa. In Japan the rice crops receive even 75 pounds of nitrogen per acre in addition to large amounts of phosphatic manure and Potash. In Madras potash is found unnecessary and phosphatic manure helps to a certain extent increased production but the most important factor is Nitrogen.

The consumption of Ammonium Sulphate in Madras has more than doubled in the last five years and is now of the order of 75,000 tons and is likely to reach a lakh of tons in the near future. But the difficulty is the supplies from abroad or by Government of India have not been regular and this year there was not timely application. But on the whole the increased application of Ammonium sulphate is already an established feature of rice cultivation in this State.

4. A copy of the minutes of the last meeting of the representatives of State Governments held at New Delhi to consider the distribution of chemical fertilisers found in Appendix V to your letter was also received by this Government separately and has been communicated to the Director of Agriculture, Director of Community Development, and Registrar of Cooperative Societies. It is seen that the Government of India propose to revive the phosphatic fertiliser pool. When this proposal materialises steps will be taken in this State to push into consumption superphosphate which is generally advocated to be used in the ratio 1:2 along with the Ammonium Sulphate. As regards the popularisation of bone digesters for the production of bone meal, suggested in your letter, it is doubtful whether any substantial results could be achieved as the present production of raw bones in this State, viz. about 9,000 tons per annum is hardly sufficient to meet the requirements of the bone crushing units set up in this State. However, this Government are considering the question of trying a bone digester in the National Extension Scheme and Community Project Areas in this State.

5. The article of Dr. Pawar referred to in paragraph 2f of your letter lays stress on the importance of green manuring. In Madras organic matter was found not only to increase the yield but also improve the conditions of the soil. The Madras Agriculture Department is therefore concentrating on an overall programme of application of organic matter in the form of green manure, like *Sesbania Speciosa* etc.

The question whether the manuring practices in this State call for any changes in the light of the comments made in paras. 14-15 and 19-27 of your letter No. XIV, dated 6th November 1954, is under examination.

6. The 'Wave' shaped rice cultivation method described in the appendix III of your letter under reference provides interesting reading. The Director of Agriculture of this State will be asked to try it on some plots by way of experiment and demonstration.

7. The figures relating to the area and production of rice State-wise since 1949-50 furnished in the Appendix XXI of your letter reveals the part played by the Japanese method in increasing production. I am enclosing as appendix I a note recently received from the Director of Community Development of this State on the enthusiasm generated in the Community Project areas for the Japanese method of paddy cultivation. The note is only to illustrate the success of this method and is by no means an exhaustive report.

8. The various recommendations contained in the report of the Land Revenue Reforms Committee, Madras are under active consideration of this Government. I am enclosing as Appendix II to this letter a copy each of this Government's proceedings dated 9th October 1954 and 25th November 1954 containing the orders passed on certain chapters of the Report covering Capitalist Farming, State Farming, Co-operative Farming and Peasant proprietorship.

9. In paragraph 17 of your letter you have referred to the proposed campaign during the ensuing sugarcane sowing season to bring home to ryots the steps for better cultivation. Some literature on the subject said to be ready for distribution and copies of your proposed radio talk may kindly be made available to this Government as soon as possible. We shall also arrange radio talks and special articles in sugarcane in the popular Departmental journals. Necessary instructions will be issued to the Director of Agriculture.

10. I agree with you that there should be no slackening in conducting crop yield competitions. This Government are already co-operating in the scheme and as desired by you necessary instructions will be issued to the officers concerned for giving wide publicity for the prizes awarded at the State and in all-India level and to enlist the maximum possible number of competitors.

11. In paragraphs 23-24 of your letter for December 1954 you have referred to the formation of a Farmers' Forum or Krishak Samaj. You may recollect that this subject was touched upon at the informal meeting of the State Agricultural Ministers convened by you at the time of the Governing Body meeting of the Indian Council of Agricultural Research on the 15th of this month. There is some force in the view which was then expressed by certain Ministers that it would be rather difficult to keep these associations absolutely non-political. As observed by me on that occasion, in Madras there are Agricultural associations in almost every village and they could be used for this purpose. After some discussions, it was agreed at the above meeting that the existing organisation of farmers should be made use of for this purpose and that it was not necessary to start new organisations. In the light of this decision, it is hoped that a further communication will be sent by the Government of India clarifying in precise terms as to the further action to be taken in the matter.

12. With a view to bring progressive agriculturists and officials closer for free exchange of ideas, this Government have directed that an "Agricultural Week" should be celebrated in a few representative centres in each district of this State, the celebration lasting ordinarily not more than one day at each place during the Pongal Week (January). The celebration will purely be unofficial in character and arranged as far as possible by local village, taluk or district Agricultural Associations or representative *ad hoc* committees of the local agriculturists themselves, the Government officers giving them all assistance and support. The celebration is being arranged with the aim of bringing together on one common platform officers of the various nation-building Departments like Agriculture, Animal Husbandry, Co-operation and officers of the Community Projects and the National Extension Service Schemes in those areas where they are in operation, progressive agriculturists and local members of Parliament and the State Legislature. In addition to the local celebration, a State Agricultural Meeting is also proposed to be held at a place nearby Madras during the ensuing Agricultural Week for which leading agriculturists of the State will be invited. You were kind enough to accept my invitation to preside over it during your visit to this State next month. I shall send you a separate communication relating to the above meeting shortly. It is likely that this meeting will be the forerunner for the formation of a State Farmer's Organisation.

13. With reference to paragraph 33 of your letter dated 2nd October 1954, I am forwarding herewith copies of certain available publications on fruits and vegetables published by the Madras Agriculture Department. I hope they will provide interesting reading. An authoritative account of the work done on fruits in the composite Madras State can be had from the book on the "South Indian Fruits and Culture" published in 1949.

14. Besides myself, the Chief Conservator of Forests Madras, three Conservators of Forests and one Assistant Conservator of Forests of this State attended the Fourth World Forestry Congress at Dehra Dun. The Madras Forest Department also participated in the exhibition organised in connection with the above congress.

15. Detailed experiments are being conducted at the Fresh Water Biological Station, Madras on the acclimatisation and transport of fish seeds of pearl spot (*Etoroplus Suratensis*), a back water fish successfully acclimatised for culture in fresh water. The Fisheries Department recently participated in the Municipal Exhibition at Tiruvannamalai which was inaugurated by my colleague Sri S. Ramaswamy Padayachi, the Minister for Local Administration. The Department also partook in another exhibition in the Coimbatore district organised by the local Community Project Authority. The Fisheries cold store plants which the Fisheries department have put up at Mangalore and Kozhikode have been completed. The Kozhikode plant is already under trial run and I shall be formally inaugurating it in the first week of January 1955.

16. I am enclosing as appendix III to this letter copy of the note furnished by the Registrar of Co-operative Societies, Madras regarding the role played by Co-operatives in developing agriculture and marketing of agricultural produces. It is proposed to appoint a committee on co-operation to review the progress made of the co-operative movement in this State to enquire into its present need, difficulties and problems and to make recommendations to Government regarding its consolidation, development and reform.

17. On the advice of the Central Rinderpest Committee set up by the Government of India a pilot scheme for eradication of rinderpest by opening quarantine stations on the border areas of Andhra and Mysore States has been sanctioned by this Government. It is also proposed to open 20 such centres in the districts of Chingleput, North Arcot, Coimbatore, Salem and South Kanara to try rinderpest

vaccine on a sufficiently large scale to create a buffer zone or belt area. The Centres have been opened and are functioning.

18. The various measures to prevent useful and valuable cattle being slaughtered were discussed by the Expert Committee for the slaughter of cattle which held its meetings at Madras early this month. The Committee interviewed leading persons connected with the matter and officials and obtained their views. The Committee's report is awaited. I agree with you in your observation that the question of prevention of slaughter should be considered not on sentimental grounds but purely on economic grounds. In this State there is not, so far as I know, any compelling demand for legislation for preventing slaughter of cows.

The pure bred stock of poultry that are being maintained now by the Animal Husbandry Department are not at all sufficient to meet the growing demands of the public. The imported variety of birds introduced in this country some years back, particularly the White Leghorn and Rhode-Island Red have acclimatised themselves to this country and these birds are now familiar even in interior villages. For livestock breeding it is always essential to introduce fresh blood as often as possible to keep up the vigour, the fertility and production level. This Government have therefore obtained day-old chicks from the U.K. which are transported in plane by special boxes. The chicks arrive in Madras within 72 hours from England. The first batch of 500 day-old chicks have now arrived and they are looking well. There is a proposal to get another 5,000 day-old chicks, rear them at various Government Farms for three or four months and issue them to the public particularly in the Community Project and National Extension Scheme areas after immunising them against contagious diseases like Fowl Pox and Ranikhet disease.

19. We have now evolved a scheme for development of cottage industries through co-operatives without involving payment of subsidy or grant of interest free loans. Under this scheme, only such of the cottage industries as have a survival value with a ready market will be selected for establishing a co-operative society. Each society will limit its attention to only one industry. Every member of the society will contribute a minimum share of Rs. 5. These societies will be given a loan upto ten times their paid up capital plus reserve fund on interest at $4\frac{1}{2}$ per cent. per annum repayable in ten years. The services of a Senior

Inspector of Co-operative Societies will be lent to every three societies so formed to guide their day to day activities. The expenditure on the Senior Inspector will be borne by the State Government. It is hoped that this will have a desirable effect on the improvement of cottage industries in this State.

We have started two training centres for developing the skill of bamboo workers in the Lower Bhavani Project area. We have also sanctioned a scheme for the setting up and running 30 demonstration units of Wardha Ghanis in the Community Projects and National Extension Service areas. We have further sanctioned a training scheme for women for training them as spinning organisers under the auspices of the Kasturba Gandhi National Memorial Trust at Erode in Coimbatore District. We have formulated a detailed scheme for rural housing in the Community Development areas in this State according to which loans will be granted for the construction of new houses and for the improvement of old ones.

20. The Silver Jubilee Celebrations of the Indian Council of Agricultural Research have rightly aroused considerable interest in the country in the progress of agricultural science and the contribution made by the Indian Council of Agricultural Research towards it. The 'Hindu' Madras brought out a special Supplement and other newspapers also published special articles. The Agricultural Exhibition organised by the Indian Council of Agricultural Research was really attractive and it deserves to be made a public institution. I understand that the Indian Council of Agricultural Research is sending the Exhibition to Madras in connection with the Avadi Congress. It is as it should be, as it will spotlight the improvements in agricultural practice and the contribution to better living through research. You have referred in your letter to the Russian Agricultural Exhibition. There is no reason why the Indian Exhibition should not be as well organised and useful so that the agricultural Scientists no less than the Administration may take a pride in the march of science in India.

APPENDIX XXVII

LIST OF ENCLOSURES TO SHRI M. BHAKTAVASALAM, MINISTER FOR AGRICULTURE, MADRAS'S LETTER.

*1. Plum Growing in South India by U. Narasinga Rao, Fruit Specialist, Madras.

*2. South Indian Mangoes with Hints on Propagation, Culture and identification of important varieties by K. C. Naik, B.Ag. (Bom.), M.Sc. (Bristol), Superintendent, Fruit Research Station Kodur Cuddapah District. (Bulletin No. 24) (Second Edition).

*3. A survey of Fruit-Growing practices and Fruit Research Problems in India by U. Narasinga Rao, Assistant Fruit Specialist, Coonoor.

*4. Regional Peculiarities in Apple Production by U. Narasinga Rao, Assistant Fruit Specialist, Coonoor.

*5. A Note on the Mandarin Orange Decline by U. Narasinga Rao, Assistant Fruit Specialist, Coonoor.

*6. Pruning of deciduous fruit trees—A resume of trials over eight years at the Pomological Station, Coonoor by U. Narasinga Rao, Fruit Specialist, Coimbatore, etc.

*7. Studies on inheritance of yield characters in clones of strawberry (*Fragaria vesca*, LINN) and PYRETHRUM (*Chrysanthemum Cinerariaefolium*, PREG) by U. Narasinga Rao, Fruit Specialist, Coimbatore, V. S. Rangacharlu, Assistant Fruit Specialist, Coonoor, and B. S. Kuppuswami, Assistant Pomological Station, Coonoor.

*8. Curing the persimmon (*Diospyros Kaki*) by U. Narasinga Rao, Pomological Station, Coonoor.

*9. Two New Berry Fruits—Hackberry and Raspberry (*Rubus* spp.) for the Hill Ranges of South India by U. Narasinga Rao, Fruit Specialist, Coimbatore and V. S. Rangacharlu, Assistant Fruit Specialist, Coonoor.

*10. The Horticultural Approach in Maximising Food Production by U. Narasinga Rao, Fruit Specialist.

*11. Effect of Linseed Oil Spray on the Growth and Yield of Apple Trees on the Nilgiris by U. Narasinga Rao, V. S. Rangacharlu and B. S. Kuppaswamy, Pomological Research Station, Coonoor, Nilgiris.

*12. Vegetative Propagation Trials with the Persimmon (Diospyros Kaki Linn.) by U. Narasinga Rao, V. S. Rangacharlu, B. S. Kuppaswamy and A. R. Krishnaswamy, Pomological Research Station, Coonoor, Nilgiris.

*13. A note on the use of polythene film in the air-layering of fruit and other horticultural crops by U. Narasinga Rao, B.Sc. (Ag.).

*14. Mango propagation methods at fruit research station, Kodur.

*15. Naik, K. C. Some, special features of South Indian Horticulture.

*16. Eat More Fruit by K. C. Naik, M.Sc. (Bristol), Fruit Specialist, Kodur, Cuddapah.

*17. Naik, K. C., and Rao, M. Mohan "Studies on blossom biology and pollination in mangoes (*Mangifera Indica* L.)."

*18. Dehydrated Banana Products and Their Food Value by K. C. Naik, B.Ag. (Bom.), M.Sc. (Bristol), Fruit Specialist, Kodur (Cuddapah Distt.).

*19. Banana Fibre Investigations by K. C. Naik, M.Sc., Fruit Specialist, Madras.

*20. The Imperial Council of Agricultural Research—A study of the Pre-Orchard Life of certain Rootstocks for Chinese Orange (*Citrus sinensis* Osbeck) and Acid Lime [*C. aurantifolia* (Christm) Swingle] at Kodur by K. C. Naik.

*21. Mangosteen (*Garcinia Mangostana*, L.) and its culture in South India by U. Narasinga Rao, Fruit Specialist, Coimbatore and V. S. Rangacharlu, Assistant Fruit Specialist, Coimbatore.

*22. Some Citrus Nursery Technique Trials at the Fruit Research Station, Anantapur, Madras Presidency by K. C. Naik.

*23. Growers' pocket guide to commercial fruits of South India by U. Narasinga Rao, B.Sc., Ag., Fruit Specialist, Coimbatore.

*24. A pocket guide to commercial vegetables of South India by U. Narasinga Rao, Fruit Specialist, Coimbatore and V. N. Madhava Rao, Assistant in Fruits, Coimbatore.

* 25. Summary of App. I containing the note showing the measures of enthusiasm generated in the Community Project Areas for Japanese Method of Cultivation and the steps necessary for augmenting the enthusiasm.

26. Summary of Madras Government G.O. No. 2899, dated the 9th October, 1954 and orders issued (Brief note attached).

27. Summary of Appendix III containing the summary of extracts of letter No. RC.14409/54-Q dated 23rd December 1954 from the Registrar of Co-operative Societies, Madras to the Secretary to Government, Agriculture Department.

SUMMARY OF APPENDIX I TO LETTER NO. 135935BIII/54, DATED 31ST DECEMBER 1954 FROM SHRI M. BHAKTAVATSALAM, MINISTER FOR AGRICULTURE, MADRAS, CONTAINING THE NOTE SHOWING THE MEASURES OF ENTHUSIASM GENERATED IN THE COMMUNITY PROJECT AREAS FOR JAPANESE METHOD OF PADDY CULTIVATION AND THE STEPS NECESSARY FOR AUGMENTING THE ENTHUSIASM.

(1) *Malampuzha Project Area*.—The Japanese method of paddy cultivation was first introduced in the first crop season of 1953 in 17 villages over an area of 24 acres. Being a new innovation difficulty was faced to convince the ryots of the usefulness of the method as also in 'transplanting' against the local practice of 'broadcasting' the seed in the first season. The yields obtained were, however, quite significant. Even in the 2nd crop season, an experiment conducted under the aegis of I.C.A.R. showed encouraging results but the difficulty of extending the method to the 2nd season was the lack of assured water supply, which with a few irrigation projects in hand now, may alleviate the problem.

During 1954, the method has been tried in 30 villages covering 520 acres. Intensive propaganda was done among the ryots through individual contacts, demonstrations, exhibitions and distribution of literature. In the 2nd crop season, 50 acres are fixed for each village and 50 ryots have already agreed to it, in spite of its high cost of production.

(2) *Lower Bhavani Project Area.*—There being two primary stages in the method i.e. nursery and transplanted stage, the ryots in the first stage of 'nursery' appreciated the value of selection of healthy seeds, treatment with fungicides and lower seedrate but are unable to follow heavy manuring in the nursery which would render the seedlings unfit for transplanting in successive crops due to vigorous growth. They, however, take to heavy manuring where only 2 crops are raised. In the transplanted stage, the ryots are already following heavy manuring and are obtaining good results comparing with the yields under the Japanese method. Regarding line planting, the ryots feel that the additional yield of a bag or two per acre obtained by line planting and interculture is not worth the additional labour and money spent and don't feel induced to adopt these methods particularly due to fall in the prices of paddy. Though most of the main features of the Japanese method are being followed successfully, it is not very popular in its entirety and this requires large scale distribution of literature screening of films and sale of fertilisers at subsidised rates.

(3) *Periyar Project Area.*—The Japanese method was adopted in 411 acres during the last season. The yields although higher than the local method were not upto the expectations due to adverse seasonal conditions and wide attack of insectipests. The ryots are convinced of using low seedrate but average cultivators are not in a position to invest Rs. 100 to Rs. 125 per acre as cost of manuring and who are further handicapped with the non-availability of fertilisers at scheduled rates in the market. The vertical planting in rows and greater time taken for it impedes the spread of this method as it involves more labour which is already in acute shortage at planting time.

(4) *South Kanara Project Area.*—The Japanese method is gaining grounds as a result of demonstrations and intensive propaganda. An average cultivator with adequate means has adopted it readily. The large cultivator feels the non-feasibility of adopting all the essentials of this method over a large area within the stipulated time while the poor ryots feels it more expensive. Nevertheless the supply of fertilisers under short term loans and interculturators have enthused the ryots and it is felt that a subsidy of 25 per cent. on interculturators to them will go a long way in the popularisation of this method.

SUMMARY OF APPENDIX II TO SHRI M. BHAKTAVATSALAM'S
LETTER No. 135935B.III/54, DATED THE 31ST DECEMBER,
1954, MADRAS GOVERNMENT G.O. No. 2899, DATED THE 9TH
OCTOBER 1954, CONTAINING RECOMMENDATIONS OF LAND
REVENUE REFORMS COMMITTEE AND ORDERS ISSUED.

The Madras Government have examined the recommendations of the Land Revenue Reforms Committee, Madras on the several systems of farming viz. capitalist farming, state farming, collective farming, peasant proprietorship and co-operative farming and passed their orders thereon. Regarding capitalist farming, the Government have accepted the recommendation that it should not be encouraged in lands already occupied on a matter of active State policy except in plantation areas. In respect of undeveloped areas, the Government have accepted the view that capitalist farming by individuals or companies should be encouraged side by side with mechanised farming wherever necessary.

State farming has not been recommended by the Committee except for research, experiment and demonstration. The Government have concurred with this and have also supported the Planning Commission's view that state farming should be resorted to only on an emergency measure in cases where substantial farms under individual management are inefficiently managed resulting in fall in production. For reclamation of waste lands state farming should be tried only in case co-operative farming and individual settlements fail.

The Committee have likewise ruled out collective farming on a deliberate State policy on account of the high degree of regimentation involved and the degradation of the agricultural classes into mere wage-earners. Where, however, the Community of a village comes forward for trying collective farms, the State should endeavour to encourage such collectives. The Government have ordered that where 75 per cent. of the adult population covering 75 per cent. of land in a particular area agree to try collective farming the remaining 25 per cent. should be compelled by legislation to come into the collective farm.

The Government have agreed with the view of the Committee that peasant proprietorship is the best pattern suited to the genius of the people.

In regard to co-operative farming of different types, the Government have accepted the recommendation of the

Committee that better farming societies, particularly as part of multi-purpose societies are worth trying and should be encouraged, as also co-operative joint farming societies according as the people desire. Co-operative collective farming suffers from the same disabilities as in the case of general collective farming already noticed but it may be tried in areas where the village community voluntarily comes forward for the purpose. While no exception need be taken to existing co-operative tenant farming societies, further colonization should be made in the order of preference by co-operative joint farming societies, co-operative better farming societies, and individual statements.

The Government are not in favour of the use of compulsion of any sort in the formation of joint farming or better farming societies. At the same time, an intensive drive should be undertaken by the Co-operative Department for the organisation of the two types of societies, beginning with concentrated drive in one, two or three taluks in a district.

The Government have not agreed with the view of the Committee that cultivated land should be initially reclaimed at Government cost to be recovered later from co-operative society to which the land should be handed over. Such reclamation is to be done by the Co-operative Societies themselves with such small assistance as Government may be able to give.

The Government have also accepted the Committee's recommendation that subsidiary industries should be organised for members of co-operative farming societies to make them self-supporting.

SUMMARY OF APPENDIX III CONTAINING THE SUMMARY OF EXTRACTS OF LETTER NO. RC.409/54-Q., DATED 23RD DECEMBER 1954 FROM THE REGISTRAR OF CO-OPERATIVE SOCIETIES, MADRAS, TO THE SECRETARY TO GOVERNMENT, AGRICULTURE DEPARTMENT.

Rural Credit Societies in Madras are playing a useful role in the development of agriculture and marketing of agricultural produce by financing their agricultural members and also by providing improved seeds, chemical fertilisers and agricultural implements. These societies require further reorganisation by admitting more and more credit

worthy members and expanding their activities. The scheme of subsidising central banks for intensifying supervision of the societies which was in operation before, will have to be revived for the purpose, and proposals in this connection, are being submitted to the Government.

There are also 92 full fledged mutli-purpose societies which undertake a variety of activities besides supply of credit. These societies used to do substantial business during the decontrol period but after the decontrol of food grains etc., there has been a decline in their business. The scheme of intensive cultivation through village co-operatives has been pursued with success in 7 districts in the state during 1953-54.

With the lifting of controls over foodgrains co-operative Marketing societies have come to the fore-front to play an active part in the field of marketing of Agricultural and Commercial crops. These societies not only advance loans to their members against their produce for a better market but also market such produce as agents on their behalf. The working of these societies is co-ordinated with the rural credit societies in their areas by the latter obtaining an undertaking from their members at the time of the loan that they should sell their produce only through the marketing society to which the credit society is affiliated. The controlled credit scheme as it is called was worked by 29 Marketing Societies and 296 Rural Credit Societies in 1953-54 in the State.

In pursuance of the recommendations of the Agricultural Minister's Conference held in July last, it is proposed to strengthen the existing Marketing Societies and afford them facilities for constructing pucca Godowns with the financial aid from Government and also to establish Marketing Federations on Commodity basis. For the present it is contemplated to establish four Marketing Federations in the districts of Tanjore, South Arcot, Coimbatore and Tirunelveli for paddy, groundnut and cotton. These Federations will co-ordinate the activities of the primary Marketing Societies and help them in finding a suitable market for their commodities.

APPENDIX XXVIII

BROADCAST BY DR. PUNJABRAO S. DESHMUKH, MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA ON "CROP COMPETITION FORTNIGHT FOR RABI SOWING".—3RD DECEMBER, 1954.

From 1st of this month until December, 14, we are celebrating a crop competition fortnight for the rabi season by launching a drive on a country-wide scale to enlist farmers for the competition.

The institution of crop competitions promotes a healthy rivalry among the farmers in the adoption of improved methods of farming, resulting in additional yield for the competitor and increased production for the country as a whole.

There are about six lakhs villages in our country and it is estimated that if, on an average, 20 competitors are found in every village with a competition plot of one acre each for the *kharif* or *rabi* crops, there will be about 1.17 lakh acres of land under crop competitions. If, on an average, an acre of competition plot gives an extra yield of five maunds, the total additional production will be about 5.85 crore maunds or 21.5 lakh tons of food every year. This will help the country in not only keeping pace with the growing population but also improving the economic condition of the cultivators.

As I have often said before low yields per acre have become almost traditional in Indian Agriculture and with them naturally has gone the tradition of poverty. It is certainly true that our agriculture has to contend itself against a notoriously capricious Nature. But in a vast sub-continent like ours, it is inevitable that there should occur droughts and floods alternating with each other and sometimes affecting the same areas both ways as happened in Bihar this year.

The most important of all the various causes which account for our low crop yields is, however, that our agriculturists have to deal with improvised soil. We have

not yet made sufficient effort to give back to the mother earth what we have removed from it in the form of plant food. We have for centuries been raising crop after crop over soil which has never failed us altogether. We have, however, not tried to replenish this soil with adequate nourishment. The natural consequence is that it has got established to a much lower level of productivity. The answer to this problem of low crop yields lies in the judicious application of inorganic manures along with different kinds of organic manures available to the farmer. And it is now well known that wherever we have realised our mistake and have tried to correct it we have reaped most fruitful results which have astonished the world.

Besides adequate use of fertilisers, the other important factors which help in stepping up the per acre yield of food crops are irrigation, use of improved varieties of seeds, better implements, control of pests and diseases and a rational system of cropping and rotation. All these can be easily adopted on crop competition plots or elsewhere and should increase the yield to a considerable extent, depending, of course, on the labour put in by the farmer. The results of the countrywide experiment on the Japanese method of paddy cultivation are being now so well known to all of you, the intrinsic potency of our soils to produce bumper crops is manifest for all of us to see.

We have already attained self-sufficiency in food required for our vast human population, but that by itself is not enough. We must continue to produce more, first, to keep pace with the requirements of our growing population and, second, to build up a reserve that will help us tide over all possible natural calamities which we can never leave out of calculations.

When the crop competition scheme was started in 1949-50 three crops, viz. paddy, wheat and potatoes, were prescribed for the all-India competition and only three States participated in it. The number of competitors in these three States was 19,272 and the area under crop competitions 36,445 acres. The scheme gained momentum during subsequent years.

In 1950-51, 15 States participated in the competition, the number of competitors being 1,03,966 and the area under competitions, 1,03,539 acres. More encouraging response was shown in 1951-52, when 20 States organised competitions and three more crops, viz. gram, jowar and bajra,

were added to the all-India competition. The number of competitors in the 20 participating States rose to 2,05,969 and the area under competitions went up to 1,38,868 acres in respect of the six crops.

In 1952-53, 21 States participated in the scheme. The data available for 20 of them showed that the number of competitors was 1,96,781 and the area under competitions 1,59,001 acres.

Complete data for the 1953-54 competitions is not yet available, but it is estimated that the acreage during that year was almost double the acreage during the previous year. Thus, it is clear that crop competitions are gaining popularity and farmers in larger numbers are coming forward to participate in them. This is a very healthy sign, indicating that our farmers are realising the value of improved methods.

Prizes under the Scheme

In order to attract the cultivators to participate in crop competitions in larger numbers, the Central and State Governments have instituted various prizes. The prizes awarded by the State Governments vary from State to State but so far as the Central Government are concerned, six prizes of Rs. 5,000 each are awarded to persons securing the highest yield in paddy, wheat, potatoes, gram, jowar and bajra.

During the current year, a scheme for the award of community prizes has also been introduced. Under this scheme, a prize of Rs. 5,000 is awarded to the 'tehsil' in each State which procures the highest number of entries among all the 'tehsils' of the State in conformity with the crop competition rules. Similarly, a prize of Rs. 10,000 is awarded to the 'tehsil' which obtains the highest number of entries in the whole of India. The amount of prizes is utilised for the general welfare of the cultivators of the area by the construction of seed-stores, schools, or libraries. In order to engender enthusiasm among State officials, it has further been decided to award two medals to workers in the "best tehsil" and three medals to workers in the "best district" in the State.

Promising results

The results of crop competitions reported from some of the States are very encouraging. The highest yield per acre for wheat during 1953-54 is about 65 maunds per acre,

compared to the normal yield of about 10 mds. Similarly, the highest yield in potatoes is 650 maunds per acre, compared to the average yield of about 250 maunds. These are spectacular results that we have every reason to be proud of.

In my Monthly Circular letter No. XIV to the State Ministers of Agriculture, Co-operation, Forest, Animal Husbandry and others, I gave a brief account of similar competitions in Japan. I am glad to say that at least in point of maximum production, we have done very much better than even Japan where improved methods of rice cultivation have been practised for generations. As against the absolute maximum of about 8,500 lbs. per acre of rice, our maximum rice production has reached higher levels.

I am thankful to the State Government officials and farmers who have contributed towards making the scheme a success and hope that all of them will renew their efforts to make it a still greater success during the coming season.

JAI-HIND.

JAISALMER HOUSE, NEW DELHI

February, 7, 1955

MINISTER FOR AGRICULTURE'S CIRCULAR LETTER
NO. XVII

DEAR FRIEND,

After attending a meeting of the Executive of the Sanskrit Vishva Parishad in Bombay at the invitation of Shri K. M. Munshi, I went to Nepanagar. This is a newly constituted township which has come into existence as a result of the establishment of the National Newsprint and Paper Mills, Ltd. This State endeavour had to face a number of difficulties, but I visited it on the eve of its commencing production. It is likely that the Prime Minister may formally inaugurate it some time in the month of March 1955.

2. Madhya Pradesh is well known for its forest wealth especially its teak. But this factory is situated in the area where *salai* and *Maharukh* prosper. It is proposed to utilize this raw material in the manufacture of paper. It is claimed that this is the biggest paper factory in the East and is expected to meet about 30 per cent. newsprint requirements of India. Manufacture of paper requires very large quantity of water and I was told that if the waste water could be utilized it would irrigate over 1,400 acres of land. I saw the plantations as well as some land, which has been brought under cultivation. It is apparent that Shri Sagreiya, a Forest Officer, who is working as the Manager-Director, has done a good job of work in many spheres. I think all our friends in charge of Forestry in India would be interested in the working and progress of this factory.

3. The following paragraphs give a few details about the industry, and indicate the importance of the Mill from the point of view of utilization of forest produce:

(i) Though the Nepa Mills project aims at reducing at least partly, the country's dependence on other countries in respect of Newsprint, an essential commodity, it would

not be incorrect to say that it was originally conceived with the objective of utilizing the forest produce of the State to the best advantage. As a matter of fact the original plan of the State Government was to put up only a paper mill in this area in order to utilize the abundant supplies of bamboo of the forests. But when it was found that salai wood, which occurs in large quantities in this area and which has no commercial demand so far, could be utilised for making mechanical pulp, the proposal to put up a newsprint mill in this part of the State was considered.

(ii) The rated capacity of the mill is 100 tons per day or approximately 30,000 tons per year. If the mill uses a combination of 60 per cent. mechanical pulp and 40 per cent. of chemical pulp, it is estimated that the mill would require 100 tons of salai wood and 100 tons of bamboos per day. Thus, these products which uptill now were not being utilized to the best advantage would be yielding an appreciable income to the State, and, what is far more important, producing indigenous newsprint. Naturally, the forests from which these raw materials are to be obtained will have to be under efficient management to maintain the productivity of soil. From this point of view, the cutting prescriptions for *salai* trees which in places form the only vegetative cover on the soil, lay down that the Company can remove only two out of three standing trees of utilizable size.

(iii) In the existing forests, *salai* trees occur diffusely along with other species, and thus the yield per acre is only 2 to 3 tons. The cost of collection is, therefore, high. Therefore, it is necessary to plan for concentrated supplies of pulp-wood close at hand. The Company has by experimentation determined the most suitable species for making pulp, and the best method of raising plantations thereof at the minimum cost and large scale work has now been taken up by the Forest Department of the State of Madhya Pradesh. It is estimated that every year an area of nearly 1,500 acres will have to be planted until the earliest crop attains exploitable size. Thereafter thinnings in the middle-aged crops and clearfelling and replanting of the oldest crop should give a sustained yield of pulp-wood at the rate of as much as 20 tons per acre.

(iv) Two methods of creating such plantations are to be used (i) agri-silviculture suitable for level areas with

good soil under which agricultural crops will be raised between the rows of pulpwood plants in the first four to 6 years depending on the nature of the soil to recoupe a part of the cost of formation, and (ii) the ridge and ditch method suitable for hill slopes with poor soil under which to collect all rain water, trenches will be dug contourwise and seed of pulpwood species sown on their edges on heaped spoil earth. To create such extensive plantations, labour colonies will have to be settled at suitable places and provided various amenities. If properly handled, such plantation programme should lead to the development of forest lands which at present carry a poor growth of vegetation. Incidentally, this development will also lead to increased production of food and cash crops and raising the living standard of the population engaged on the forest and agricultural work for their livelihood. These model villages could also supply some labour for the mills and thus congestion in Nepanagar proper could be avoided

(v) The effluent from the Mill will be approximately 3½ million gallons per day. Part of this after clarification could be used for irrigation purposes. It will be sufficient to irrigate about 1,400 acres of land. Partly the irrigated land could be used for raising plantations of pulp species and partly for raising agricultural crops. Thus the project, though mainly industrial, will appreciably benefit the forests and also result in agricultural development of the neighbouring areas. Such development deserves to be included in the extension blocks and given all possible help.

4. As a result of a pure accident, I visited this month three other important forest areas in India. The forest in the southern part of the State of Bombay, near Dandeli, in the districts of Dharwar and North Canara, the forests of Coorg and Nilamber Forest. I may have something to say about each of them later, but here I want to record the fact that in both the Dandeli forest as well as Coorg and the Madras forest in Malabar, there is a large quantity of bamboos which is not being exploited to the extent, it should at the present moment. The best possible uses are for paper and pulp-making or for building purposes after seasoning. I happened to visit the Rajahmundry and was putting up in a paper factory under Government management at the moment. This is a small plant producing ten tons of paper a day. I learnt that there was a proposal to

have a bigger plant started there soon. But what was good news to me was that the investment for a plant of 15 tons a day or so would not need an investment of more than 5 to 6 lakhs of rupees.

5. Even if this may probably be an under-estimate, paper mills which could utilize the forest material, which is going more or less waste at the moment, with an investment of anything upto 10 lakhs or so, should be within the easy reach of even a State like Coorg, in case private endeavour is not prepared to come forward. It is, I think, self-evident fact that the paper requirements of India would be going up very rapidly, and thus there should be ample scope for such national concerns. Somewhat similar situation exists in Assam, probably with a much larger quantity of bamboo than any of the places to which I have already made a reference. There are some attempts being made to establish a paper factory in Assam, and I hope this will come about soon. I propose to investigate this matter a little further so as to be in a position to give some definite advice in the matter. I hope I would be able to do this soon.

6. From Nepanagar I went to Khandwa, where I addressed a meeting of a large number of practical and progressive farmers in a Seed and Demonstration Farm of the M.P. Government situated at Khandwa. The following particulars about this farm would, I think, be of interest.

(i) This seed farm is situated on the Khandwa Jaswadi road at a distance of three miles from Khandwa. It was started in the year 1920, and serves as a good guide to the cultivators in observing and following various improved methods of agriculture and horticulture.

(ii) Soil of this farm is of medium to light nature. This farm is surrounded on one side by a river which provides perennial water supply for irrigating a part of the area of the farm. Uptil last year, nearly 16 acres area was irrigated through river water by pumping and now a new power engine has been set up on the river bed which will help in irrigating nearly 30 acres of area under different crops including vegetable and fruit crops. The area of the farm is 179.57 acres of which 126.92 is under cultivation, 5.94 under building and roads and 46.7 acres is for grazing.

(iii) Cotton, juar and groundnut are the three main crops which occupy the major area under cultivation, which in 1954-55 gave average production of 500, 900 and 1,130 lbs. per acre. Since 1951 the farm is making a profit of between Rs. 8,000 and Rs. 10,000.

7. On the morning of the 8th January, I inaugurated the 21st Annual Show of the Bombay State Poultry Association. The show was worthy of the reputation of this Association not only from the point of view of number of entries but also from the quality of the entries. As I stated in my speech (Appendix I), Bombay has one-tenth of the entire poultry population of the country. In the course of my speech, I also made certain observations to which I would like to draw your pointed attention by quoting them here:

(i) "A new approach to better production initiated exactly two years ago in the shape of the Japanese method of which Bombay may rightfully claim to be the home combined with slightly but not wholly better co-operation of Nature, has achieved something like a revolution in food production. Not all people know how this happened and not a few are reluctant to give the credit where it is due. Innumerable experts, paid and unpaid, many wise economists and basketful of theorists not long ago, upto about 12 to 15 months ago, to be precise, had as a matter of scientific investigation and meticulous mathematics, solemnly propounded the theory that with India's growing population, there was no other fate awaiting India except continuous food scarcities, eventual famines and starvation, ending ultimately in wiping out the Indian population. One followed the other, and so it became an established and unquestionable proposition that as the history of Indian Agriculture showed, there was no prospect of India being self-sufficient in food. Never! Never. To many the increasing population became a nightmare. But the most unexpected and uncalculated happened. State Governments and agriculturists listened to our request and responded to our call. The result is here for everyone to see. And, fortunately, this is not confined to rice only. Juar, bajra, maize and ragi have also increased in larger average production, and so have oilseeds, cotton and pulses. We are now no longer concerned with deficits and deficiencies, but the exact

opposite, unsaleable and oppressing surplus at least in case of rice and coarse grains. Many of the Planning Commission's targets are completely burst. And, yet I do not like the word 'self-sufficiency' for two very important reasons. Firstly, I do not want any one to forget how our friend the Monsoon can make hell out of heaven and *vice versa*. More irrigation can certainly help us a lot and be a very reliable insurance. But we should also never forget that lack of rain can dry up many of our irrigation tanks themselves. Only two years ago the great Krishnarajsagar of Mysore was dry and so were other tanks which supplied water and power to Madras. Nor can improved methods help us much if there is no rain or too much rain. The second reason is that our standards of nutrition are yet appallingly low with the result that the seeming surpluses are not in my view real surpluses. It is, therefore, my considered opinion that our people should be able to consume much more food and we should make a determined effort to give them the right kind of food".

(ii) "The egg-producing capacity of our 73 million or so fowls and ducks is very poor, being 53 as against 120 per annum in most other countries. Moreover, the size of our eggs from country fowls is only about half. The present output of eggs in India allows only four eggs to a person in a whole year, but according to our human nutrition experts, the optimum requirement is one egg a day per adult unit, of which our present human population comprises about 313 million. From this you will realize that it is imperative that we make special efforts towards bringing the huge gap and achieving the target of producing over 100 thousand million eggs every year."

(iii) "Convinced beyond doubt that people of India respond to all sensible calls by the success I attained in preaching the Japanese method, and anxious that nutritional standards of ours must be quickly improved, I decided that poultry was a thing which would yield quick results if it were subjected to the same treatment as rice production".

(iv) "Thus, while the Central Government are proposing to launch at an estimated cost of Rs. 70 lakhs a countrywide scheme for establishing 150 poultry development centres in the various States during the Second Five Year Plan period, a pilot scheme has already been sanctioned for setting up 15 centres immediately as a prelude

to the main scheme. Under the scheme, it is proposed to import baby chicks in large numbers from abroad, rear them for a few months on well organised farms in India, and finally to distribute them in concentrated areas for breeding and grading work in the States. This is the utmost I could get done under the present circumstances, but I hope we shall succeed in creating a countrywide interest for poultry development. I have no doubt all our efforts would be highly fruitful. Full text of the speech is Appendix I.

8. During the tour that followed this inauguration, I was glad to observe increased attention being paid to poultry development in several parts of the country. This was especially so in Coorg. I am thinking of intensifying efforts for poultry development still further and I have no doubt all of you will kindly and enthusiastically respond. With an effective preventive for the Ranikhet disease, poultry industry has become a safe investment. I value it not only from a cottage industry's point of view. I do not feel very hopeful of making ample pure milk being made available at a cheap rate to all our people within a short time. It would, I think, be much easier to provide more eggs at reasonable prices. I would, therefore, while not slackening efforts at the betterment of our cattle, like all of you to think of poultry development in a large scale and give it a definite place in the Second Five Year Plan of your State. I will endeavour to do my best.

9. Before leaving Delhi for Bombay on the 7th January evening, I had already recorded a broadcast on the All India Radio to be put on the air on the evening of the 10th January, which was the third anniversary of the introduction of the Japanese method of paddy cultivation. I began this broadcast as follows:

"I could not let the 10th January pass without addressing my listeners. Exactly two years ago this evening, I broadcast my very first talk on the All India Radio preaching the Japanese method of paddy cultivation. I had moved in the matter as fast as the circumstances permitted. As you may remember, I was sworn in as Minister on the 13th of August, 1952 on the Gopashtami Day of 1952. On the 19th September, the President Dr. Rajendra Prasad wrote to me drawing my attention to the experiments under the Japanese method conducted at the Kora Kendra at Bombay under the Gandhi Memorial

Fund Organisation. *I accordingly visited Kora Kendra soon after and started the study of the Japanese method of rice cultivation in right earnest."

"On the 8th of January 1953, I was called upon to preside over the Food Ministers' Conference in the absence due to illness of the late Shri Rafi Ahmed Kidwai. I referred to the Japanese method there and suggested if it might not be possible to loan to the rice-growers a maund of ammonium sulphate to be repaid with one maund of rice. Although this was not accepted straight-way, the need for making available fertilisers on loan to the rice-cultivators was recognised, and accordingly a sum of Rs. 8 crores of rupees was set apart for this purpose. Similarly the price of sulphate of Ammonia was reduced from Rs. 365 to Rs. 290. All this is now part of the history of Indian Agriculture. But it is as well to remember the main events. Recounting them on this day, the third anniversary of its propagation, would, I hope, therefore, not considered inappropriate."

10. In the same broadcast I referred to our efforts in improving sugarcane production.

"I am glad the small effort we made in improving sugarcane production has yielded results. For the next sowing of sugarcane I would like sugarcane-growers to keep ready, enough stocks of ammonium sulphate, so that some at least of it may be used before they put in the seed in the soil. For the sugarcane crop it is necessary to plough deep. The other steps also have been indicated in pamphlets which have been already printed for the purpose and are being distributed."

11. I then draw attention to some new developments in Japan, which were communicated to me:

"In the case of the Japanese method also, there are quite a few new ideas that have come up. I want these ideas to be studied carefully by the various Agriculture Departments in the States and adopt them with or without modifications as may be considered necessary under their own conditions without delay. The Japanese themselves are perpetually adopting newer methods. They have recently sent me what is described as the "Wave-shaped Rice Cultivation Method". I have referred to this and given it in extenso in one of my Circular letters. This Wave-shaped Rice Cultivation Method" was sent to me

in a note by the President of the Central Commercial Company of Japan. I gave it in full as Appendix III in my Circular Letter No. XV for the last month, i.e. December 1954. It has been stated in the note that with a spacing of $18'' \times 4''$ the yield obtained was 5,424 lbs; with $30'' \times 2\frac{1}{2}''$, 8,532 lbs., and with $42'' \times 2''$, 10,184 lbs. A few more details also are given in that note."

Appendix II contains the full text of the broadcast.

12. On the same day i.e. 10th January, I inaugurated a pilot scheme for the eradication of rinderpest at Dharwar. This pilot project is to cover the districts of Dharwar and north Kanara. As I pointed out in the course of my speech, 'of all the contiguous diseases, rinderpest has been considered as the most important, as it is responsible for 60 per cent. of the total mortality caused by such diseases in cattle'. This disease has been taking a heavy toll of livestock in this country and consequently paralysing the agricultural operations and seriously affecting the rural economy. As a prelude to the countrywide eradication campaign, the Government of India has sanctioned at an estimated cost of Rs. 10 lakhs a pilot project with the object of eradicating the disease from the southern Peninsula, i.e. the area comprising the States of Madras, Travancore-Cochin, Mysore, Coorg, six districts of Andhra below the river Krishna, districts of Dharwar and North Kanara in Bombay, and Raichur district in Hyderabad State. This pilot project, it is expected, will provide the requisite experience and knowledge to tackle the problem on a country-wide scale in the Second Five-Year Plan (Appendix III).

13. In the District of Dharwar, I witnessed for the first time, what is known as a "Sarvodaya Area Scheme of Arvatgi". A devoted band of social workers under the guidance of Shri Dabade have been doing some fine work for the last five years. Appendix IV gives you a summary of their achievement during this period ending 31st March 1954, which, I consider very impressive. I was not aware that any such scheme was in progress anywhere. A still more pleasing feature was that the workers were full of spirits and confidence. Among other things their experiments with rural housing were very interesting.

14. Shri P. J. Chinmugund, the Registrar of Co-operative Societies, speaks of the miraculous change brought.

about by the Sarvodaya scheme in one of the Sarvodaya areas in the Dharwar District as follows:—

“The work was started at village Arvatgi, which had a population of only 25 persons in 3 houses cultivating 40 acres of land. Now the village has a busy population of more than 400 villagers, housed in 40 houses and 50 hutments. A separate colonisation scheme was formed for the village Holtikoti, which was formerly a depopulated village. The work was started in the month of April 1951. The village has now a population of 155 souls for whom 30 cottages have been constructed and more than 150 acres of land have been brought under cultivation.”

It may be noted that the Tenant Farming Societies, which were organised in the area have played not a small role in bringing about the remarkable change in the life of the people.

In Appendix V, I have given extracts from a note on the agricultural activities in Dharwar district and particularly the Hangal taluka.

15. At Dharwar I witnessed a Folk Dance on the Grow More Food by adopting the Japanese method of paddy cultivation. The following preamble is very instructive:

“The object of Folk Dance is to revive our rich Indian culture. But prior to dancing, it is quite essential that we should lead a happy life and not merely exist. In the absence of well-nourished body it is not possible to dance and this nourishment can only be had when we are able to feed all the mouths. This can only be achieved by adopting the “Japanese Method of paddy cultivation”, which is the only solution for more food production. Here is an attempt to reveal the secrets of Japanese method of cultivation.”

This is followed by a summary of the dance performed by a very fine troupe of girls dressed both as girls and boys. The musical accompaniment was excellent and the whole dance was of a very high quality. It was, therefore, no wonder that everybody present was highly impressed and the troupe is invited to Bombay to perform

the dance on the Independence Day. I am sure, they will make their mark. I hope it will be possible for all my readers to see it one day. The Director was an oldish looking thin individual named Umesh Heranjal, who is conducting a Dharmartha Sangeet Pathshala at Mangalwar-peth, Dharwar. I have no doubt this veteran devotee of art who has effectively combined it with utility deserves every encouragement.

16. Throughout my tour of over two weeks, I saw a number of Key Village Centres and products of artificial insemination. Our ingenuous people are giving these products of artificial insemination their own names, such as "injection babies" or "test-tube babies". The results obtained were evidently impressive inasmuch as there is not only no prejudice against it amongst the villagers but they readily come forward and demand that their cattle should be artificially inseminated. I also saw very good efforts being made for the upgrading of the cattle especially in Coorg.

17. From Dharwar and Hubli, I went directly to Coorg and spent there nearly four days. I was able to see not only the various efforts made to provide Agricultural Education and Agricultural Demonstration but the remarkable progress made in increasing forest revenue. I think this is highly creditable to all concerned that in a couple of years time the revenue from forest should rise from Rs. 26 lakhs to over Rs. 40 lakhs. The band-saw which has been put up is also highly beneficial, because much of the timber, which was not very popular, is now sold at good prices, thus augmenting the revenues of the State and increasing timber supplies of the country. The Government of Coorg is anxious to have a creosoting plant started as early as possible. I have promised to look into the matter. The Government is also keen to utilize their bamboo resources to greater advantage. I hope it would be possible to do something in this connection. Appendix VI contains a summary of a note on the forests of Coorg State by Shri N. Trimurthi, I.F.S., the Conservator of Forests in Coorg. I was struck by a very useful attempt at co-operative cultivation of cardamom, more than one well-managed housing schemes, the tribal welfare activities and the marvellous progress made in the expansion of bee-keeping.

18. The Government of Coorg also deserves congratulations for having exceeded the target of 10,000 acres to be put under the Japanese method. I was told by the Chief Minister that the yields in these areas range from anything between four times and ten times, the difference in the seed-rate itself being sufficient to pay off the land revenue. And this is so in spite of the fact that Coorg has always had a better average production than any other State in India except Kashmir and the seed-rate was not very much above 40 lbs. or so.

19. Coorg has a Central Poultry Farm at Somwarpet. This was organized in 1951 as an Experimental Demonstration Unit for popularising the exotic breeds. Simultaneously, two village Poultry Development Blocks, one in North Coorg and the other in South Coorg were started. It is remarkable how within a short time of starting this farm and the blocks situated in North and South of the State the villagers convinced of the advantages of rearing exotic breeds have taken to poultry rearing as a cottage industry in almost all the villages in Coorg.

With a view to cope with the increased demand of pedigreed birds and eggs from several parts of the State, this breeding station will be shifted to Kudige shortly, where it will be expanded and organized on modern lines. The average yield of eggs per hen has been R.I.R. 103, W.L.H. 122, and performance of the best layer R.I.R. 182, W.L.H. 214. Since 1951 they have sold for hatching 8,000 eggs and 1,858 chicks. The total poultry production of the State is about 2 lakhs and the total number of pure and graded stock at present is about 30,000. Appendix VII is a short note on Dundali Collective Farming Co-operative Society, Saniwarsantha and Appendix VIII is a brief note on the working and achievements of the Nehru Colony of Harijan Welfare Co-operative Society, Ltd.

20. On the 17th January, I visited a private forest known as the Nilambur forest, which, I learn, covers over 150 Sq. miles. In this forest, I saw a century old plantation of teak covering an area of five acres. I was told that the teak standing in these five acres was likely to fetch an enormous sum. Mr. Chaturvedi, the ex-Inspector General of Forests, is said to have described this place as the Mecca of Forestry. It has been visited by many distinguished foreign visitors.

21. While the Japanese method has now been practised extensively on paddy, I was glad to find how the essentials of this method were applied to other crops especially jowar, which, in vast areas is the principal food crop. Jowar, of course, does not require transplantation and so the cultivators resorted to what is known as the dibbling method. The yields obtained were uniformly unprecedented and high, and in many cases phenomenal. One cultivator practised this on over 60 acres of land producing more than a thousand maunds of jowar. He had put all this quantity on the thrashing floor which I was asked ceremoniously to inaugurate. Our average yield per acre of jowar varies between 315 to 400 lbs. as against 1,350 lbs. obtained by the above cultivator on such a big area.

22. In Appendix IX you will find a statement containing yields of paddy and jowar obtained by the cultivators in the Dharwar district. I am glad the figures are given separately for the drilling method as well as the transplanted Japanese method. In one case at least the drilling method is said to have given better yields than the Japanese method, although I think, it is correct to say that the average is favourable to the Japanese method. I need hardly say that I would be only too glad if other methods are evolved which give better yields than the Japanese method. The point is we must get highest possible yields and my purpose is served if by any method whatever the yields are increased above certain minimum. I am inclined to place this minimum at 40 mds. per acre. If the drilling method is more beneficial, by all means, let it be advocated and demonstrated as widely as possible so that the largest number of people may take to it. I do not think any method can be adjudged the best where yields never go up to more than 15 maunds to 20 maunds per acre. We must discard a sense of false pride for our traditional way of cultivation unless we can demonstrate its superiority in every way. It is also apparent from the statement in the above Appendix that the dibbled method gives phenomenal yields of jowar, as has been found in every one of the 26 instances in the Dharwar District. The yields of these farmers range extraordinarily high being between 22 maunds 18 seers to 54 mds., which means 1,840 lbs. to 4,645 lbs. per acre. Just

compare these with the following averages of all over India for the last 4 years:

1950-51	...	315 lbs.
1951-52	...	340 lbs.
1952-53	...	375 lbs.
1953-54	...	400 lbs.

23. I repeat that we have nowhere insisted upon any stereo-typed method and I have always stressed the point that what we say should be changed and modified according to local circumstances. If there are difficulties in preparing seed beds and transplantation due to certain peculiar condition, the Japanese method may start after the first few stages. The sowing by the seed drill should be in as wide rows as possible; amount of seed used should be according to the prescribed scale but not excessive; there should be liberal use of manures and fertilizers before sowing as well as after, according to the advice of the Agriculture Department; there should also be repeated ploughings and weeding as suggested in the Japanese method etc.. I have no doubt that even if according to the traditional method people get tolerably high yields, the yield would go up by at least 50 per cent. if not much more, if the above common sense suggestions are followed as nearly as possible.

24. Secondly, as I had suggested in my broadcast, there could also be instantaneous transplanting. After about three weeks of sowing the seed, every plant could be uprooted and put back again immediately, so that much of the advantage of transplanting would be secured. This could also be done in lines and with a proper spacing. Similarly administration of some fertilizer soon after sowing would also make the plants grow quicker and stronger.

25. One small point, which was recently brought to my notice, should I think, be very widely made known, and that is that it is harmful to use only ammonium sulphate in any field, which has not had any manuring before. I would request the Departments of Agriculture in each State to convey the essential do's and don'ts of the use of chemical fertilizers in at least the bare outline to every cultivator who wishes to use it. It is only on account of such obvious blunders for which to a large extent we should hold ourselves responsible that the prejudice against chemical fertilizers is created and persists. I think it is our duty to warn the uninformed cultivators against such errors without any delay.

26. There are two further notes which also should be of considerable interest to all concerned although they relate to the small but well-advanced State of Coorg. Appendix X is a brief report on the development activities of the Forest Department, Coorg and Appendix XI is a note on the Scheduled Tribes in Coorg. It is apparent that this State is making very good progress, due essentially to a perfect understanding between the Chief Commissioner, the two Ministers and the people. The enthusiasm and co-operation of the people was indeed striking.

27. I reached Madras on the morning of the 18th January and inaugurated the Joint Conference of All India Veterinary Association and the Madras State Veterinary Association. In the course of my speech on this occasion I gave a brief account of the proposals of animal husbandry development which were likely to be included in the Second Five Year Plan. Appendix XII contains the full text of the speech and I will be glad if you will kindly go through the relevant paragraphs in the speech and let me have at an early date any suggestions you would like to offer.

28. I also addressed quite a few gatherings of agriculturists and inaugurated a cattle show at Trivellore. The suggestion of celebrating a Farmers' Week made by me in one of my circular letters has been taken up by Shri Bhaktavatsalam with considerable seriousness and he has chosen Pongal holidays as the best time for its celebration. This was done very enthusiastically at Trivellore, and I was also glad to find considerable enthusiasm for Farmers' Forum. Many people are awaiting its formal inauguration.

29. On the 20th, I performed the ceremony for the laying of the foundation stone of the Central Tobacco Research Institute at Rajahmundry. I have not had time to address the Central Tobacco Committee so far and had not had, therefore, any opportunity of acquainting myself with any thoroughness with tobacco cultivation and the problems confronting the growers and traders of this commodity. A visit to Rajahmundry therefore afforded me this opportunity and I was glad to familiarize myself with various things connected with the growing, processing and marketing of tobacco.

30. The importance of this crop to India and especially to Andhra is now well known, and it is, therefore, natural that we should think of intensifying research and take other

Dept. to help the grower of tobacco as well as the consumer. I had a look at the tobacco crop growing in Andhra as well as in the Institute and have had discussions with people engaged in research. When this Institute is provided with a permanent home, I have no doubt the work carried on in the Institute would be still more useful for the development of the tobacco industry. A brief note on the work of the Institute is enclosed as Appendix XIII and copy of my speech is Appendix XIII-A.

31. Nearly two years ago my Ministry had appointed a Committee with the object of determining standards for the regulation of the after-sale service of tractors in India. The following were its exact terms of reference:

- (1) to examine and report the standard of after-sales service which tractor importers and dealers should be required to possess and the standard charges for such service,
- (2) the minimum stocks of spare parts required to be kept by tractor importers and dealers and the price structure for the various kinds of spares,
- (3) the facilities to be provided by tractor importers and dealers for the training of tractor operators, and
- (4) the possibility of starting the manufacture of tractor and implement parts in India.

This Committee submitted its recommendations last month. They are briefly stated for your information in Appendix XIV.

32. The Government of India have been sanctioning short-term loans to the State Governments for schemes relating to the distribution of fertilizers during 1954-55. The short-term loans are at present repayable by the 30th June of the subsequent year and the interest is charged only for the period of 12 months. On the request of certain State Governments, it has been decided that the short-term loans given to the States for purchase and distribution of seeds, fertilisers etc., under the Grow More Food should be repayable within a period of 18 months from the date of

drawal of the loan but the interest will, however, be charged only for a period of 12 months from the date of the drawal of the loan. This decision will not have any retrospective effect.

33. Experiments in photo-periodism have been in progress at the Sugarcane Breeding Institute, Coimbatore. Under Coimbatore conditions, flower initiation in sugarcane is observed to take place during the falling phase of day length, viz., during the month of August and September when the days get progressively shorter. Studies were undertaken to find whether a gradual shortening of the day (as occurring in nature) or a fixed day length (short day) is favourable for flower initiation. Experiments with 2, 4, 8 and 16 times the normal fall in day length and 8 and 16 times the normal fall given in equal instalments daily have shown that there is no appreciable difference in the times of flower initiation under the two sets of conditions. While 2, 3 and 4 hours extra dark daily were all conducive for flower initiation, the four hours extra dark period appears to be the optimum and most effective with a number of varieties. On the other hand longer periods of extra dark of 5 and 6 hours daily were found to delay and inhibit flowering respectively.

34. Plant protection must constitute a major plank in our cultivation activities. Recent experience has shown that not only do crops at times suffer enormous damage from pests and diseases but that much of such damage can be prevented by timely and adequate measures. One of the main features of the Japanese method of paddy cultivation is the attention to the disinfection of seed before sowing and spraying over nursery plants for the prevention of paddy disease. Sugarcane is another important crop in the cultivation of which stress is being laid on the need for controlling the pests and diseases of this crop. It is, therefore, gratifying to note that modern techniques of pest and disease control are being increasingly developed in our country.

35. For some years past we have been employing aeroplanes as an additional means of spraying locusts with insecticides from the air. During the years 1951, 1952 and 1953, the aeroplanes and pilots were obtained from the U.S.A. Government under their Foreign Aid Programme but last year three piper super-cruisers, with Indian pilots

and technicians, were hired from the Hind Provincial Flying Club of Uttar Pradesh and very successfully employed for spraying locusts from the air over an area of over 6,000 acres in Rajasthan and about 1,000 acres in Madhya Pradesh. Last December, one of these piper super-cruisers sprayed over 600 acres of sugarcane crop in Bhopal State against the pyrilla pest with very good results. Encouraged by these performances, the Ministry of Food and Agriculture have been considering steps to provide for a small Aerial Unit for pest and disease control in any part of India. Admittedly, the employment of aircraft for such purposes has its limitations, but it has been found that where infested areas requiring treatment are very extensive and speed of action is of the essence, aerial operations prove very helpful and satisfactory.

36. Last year's locust invasion and locust breeding were unusually heavy and extensive and continued till the first week of December. A few swarms are still roaming about. Repeated and extensive campaigns against locusts had to be conducted throughout the latter half of 1954 not only in the desert and semi-desert areas but also in several adjoining States wherein locusts went and laid eggs. Judging by the locust situation in other countries, which affects India also, it appears that the locust threat to us during this year would be of about the same gravity as in the last year. As an additional line of defence, however, India is joining in an international effort to control locusts in the Arabian peninsula during this winter-spring under a plan sponsored by the F.A.O. A team of locust officers and other staff, together with equipment, is leaving for Kuwait in January 1955 for this purpose.

37. A deputy Director of Veterinary Services in charge of Dairy Development in Madhya Pradesh showed me two of his dairy units in that State. He has given me a note describing the establishment of these dairy units in that State and the difficulties encountered by him. The note (Appendix XV) makes interesting reading, and I, therefore, hope that it may be of some use to you.

38. In spite of the progress of the Japanese method and other suggestions on intensive cultivation, I think it is necessary not to slacken but to push forward with utmost possible vigour. I, therefore, propose that we again start our campaigns and intensify our efforts from the 15th of March next so as to incidentally celebrate the third anniversary of the campaign. As two years ago, I would like

this day to be utilized for broadcasts and intensive propaganda on the widest possible scale. We may not only propagate the Japanese method of paddy cultivation but a dibbling method so far as jowar and wheat are concerned, take up the education of the people in the use of chemical fertilizers, impress upon them the undesirability of resorting to broadcasting of seed and advocating the substitution of drilling in place of broadcasting, take up the campaign with regard to better cultivation of sugarcane and any other items which may suggest themselves to you. There is a probable advantage in concentrating on a few items only but tackling the question of intensive cultivation on a comprehensive scale should also do no harm. I, therefore, hope that you will bend all your energies to re-start the campaign from the 15th March next and make as thorough arrangements as possible not only for publicity but for demonstration on the largest possible scale. I hope myself to broadcast on that day and probably I may go on the air within a few days for the purpose of seeing that mass enthusiasm is aroused for the 15th March and later programme. Our efforts have paid us a magnificent dividend in the past and it is bound to pay us in the future although there are not many people who realize what we have been able to contribute by preaching these simple rudimentary things to our people and rousing their enthusiasm.

39. The Food and Agriculture Organisation of the United Nations in its sixth Session adopted a resolution to hold Regional Conferences or Training Centres on the question of reform of agrarian structures in various member countries. In pursuance of this resolution, a Centre on Land Problems in Asia and the Far East was convened by the F.A.O. at Bangkok from 22nd November to 11th December, 1954. The object of this Centre was to hold informal discussions on problems relating to land-reforms and to exchange information and experience regarding such questions.

40. The Centre was organised by the F.A.O. staff with assistance of some representatives from the I.L.O., E.C.A.F.E., and the Council of Economic and Cultural Affairs. A number of consultants and lecturers were also recruited from member countries including Prof. M. L. Dantwala, Secretary, Research Programme Committee, Planning Commission and Shri H. D. Malvia, Secretary, Economic and Political Research Department, All-India Congress Committee.

41. The following countries from the region participated:—

Burma, Cambodia, Formosa, India Indonesia, Japan, Laos, Malaya, Nepal, Pakistan, Philippines Thailand, and Viet Nam.

Some observers from countries outside the region were also present.

42. The work in the Centre was organised in the form of:—

- (1) The reading of papers on general questions of land reforms followed by a general discussion;
- (2) Round table discussion where views on important topics were first expressed by a panel of experts selected from among the staff and participants;
- (3) Round table discussion where views on important topics were first expressed by a panel of experts selected from among the staff and participants, followed by a brief general discussion;
- (4) Country reviews, giving a brief description of the main problems and the progress achieved in the various participant countries. The country review was usually read by the Leader of the Delegation of each country, followed by a brief discussion;
- (5) Workshop meetings where some of the more important topics were picked out for a detailed discussion usually during the afternoon sessions throughout a week.

43. Among the papers read at the Centre, some of the more important were:—

- (i) Objective and criteria of land policies by Prof. Dantwala;
- (ii) Role of Community spirit and mutual aid in rural development dealing mainly with the Panchayat Organisation in India by Shri H. D. Malvia;
- (iii) The concept of Land Reforms by Mr. Thomas H. Carrol of the F.A.O.; and

- (iv) Papers describing in detail the problems encountered and the methods devised to overcome them in connection with the Land Reforms in Japan read by Mr. Kai Ki Owada.

44. Round Table discussion related to such subjects as:—

- (1) What are the most important land problems in Asia and Far East?
- (ii) How to remove the fragmentation of holdings?
- (iii) Conflicts in goals and in economic interests for land reforms and how to resolve them?
- (iv) How to value the land and pay for it in land distribution programmes etc.?

45. The Workshop meetings related to such subjects as Administration of land legislation and land taxation;

- (i) Co-operative farming and village programmes improving tenancy and conditions of agricultural labourers;
- (ii) Changing tenants into owners;
- (iii) Financial aspects of land reforms; and
- (iv) Land reform and economic development.

46. Shri M. R. Bhide, Joint Secretary, Ministry of Food and Agriculture, was the leader of the delegation from India assisted by Shri Ameer Raza, Deputy Secretary, Ministry of Food and Agriculture and Chief of the Land Reforms Division, Planning Commission. An Indian delegate was on the panel of experts in connection with the round table discussions on the following subjects:—

- (1) What are the most important land problems in Asia and Far East?
- (2) What kind of development is required for newly created farms?
- (3) How to improve conditions of rural workers;
- (4) How to value land and pay for it in land distribution programmes?

47. The Indian delegation participated in the following workshops:—

- (1) Administration of Land Legislation and taxation;
- (2) Improving Tenancy and Conditions of Agricultural Labourers;

- (3) Financial aspects of Land Reforms;
- (4) Co-operative farming and village programmes;
- (5) Creating new farms;
- (6) Land reform and economic development.

In the Round Table discussions as well as workshops, the Indian delegation presented briefly the important principles underlying the policy of the Government of India on the subjects and the results achieved. A brief note describing the land problems and the land reforms undertaken in various countries is attached as Appendix XVI. As this is the most burning topic of the day I decided to include all this material in this very letter, although I am conscious it is becoming somewhat inordinate in length.

48. I have tried to give you on more than one occasion some idea of the farmers' Organisation in the foreign countries. I have recently got a full copy of the constitution of the Canadian Federation of Agriculture, as amended upto January, 1949. This is a very simple constitution, a reading of which, I believe, may prove instructive and useful and afford some guidance, although I am now inclined to the view that the establishment of the Farmers' Forum India should serve the purposes of an organisation we were contemplating. I am, therefore, enclosing it as Appendix XVII. I have also obtained a good note (App. XVIII) on the formation and purpose of an organization like Farmers' Forum and celebration of an Agricultural Week which I think would be interesting reading. I would be happy to have your comments on it.

49. This month I have received two letters from our friend Shri Pratap Singh Kairon of Punjab dated the 6th and 21st January 1955 as well as a very useful letter dated the 10th January from Shri Shankarlal Tiwari, Minister for Agriculture, Madhya Pradesh. My friend Shri Bhaktavatsalam has also again obliged us with a fairly detailed and highly interesting letter dated the 31st January. All these will be found in Appendices XIX, XX and XXI.

50. You will recollect that in our first Conference of Ministers of Agriculture, Forest, Co-operation etc. we had suggested that the Agricultural Research and Educational institutions both at the Centre and in the States should invite once or twice practical progressive farmers to live and mix with the students and the staff for about a week

or so every year for the mutual benefit of both. It was suggested that short courses should be started at these institutions which could be attended by farmers. It was also recommended under the same heading that groups of students from Agricultural Schools and Colleges should be sent to villages to stay with farmers as their guests for a period of a week or two and do practical work in the fields. I am glad to say that these recommendations have been given effect to in many places and we have been able to revitalize the publicity programmes of research institutes. But there undoubtedly remains much still to be done to which I wish to draw your attention. I am attaching herewith a statement showing action taken by the various offices concerned on our recommendations, as Appendix XXII. I would be glad to receive from time to time further information in this connection.

51. It is just over a year since the Central Soil Conservation Board was established. It is expected to deal with the soil conservation problems facing the country as recommended in Chapter XXII of the First Five Year Plan: I am sure you would be glad to note the work done so far. This is stated in Appendix XXIII.

52. In one of his letters, Shri Pratap Singh Kairon, Minister for Agriculture, Punjab, reproduced at page 92 of my Circular Letter No. XIV as Appendix VIII—D—III (printed copy), dated 6th November 1954, a reference was made to cutaneous form of rinderpest in goats. The Secretary, Central Rinderpest Control Committee has sent me the following comments on the point, which may be of interest to every one:

"In this connection it may be stated that it is interesting to note the outbreak of rinderpest in goats in Punjab accompanied by Cutaneous lesions. It is, however, hoped that the diagnosis was based on biological examination and cross-immunity tests, as the symptoms exhibited in these animals are not usually very clear-cut. For some time past the I.C.A.R. through one of their research schemes at the Indian Veterinary Research Institute have been trying out the use of lapinised rinderpest vaccine. It has been observed that this vaccine is very efficacious for immunising sheep and goats and

would be definitely superior and cheaper as compared with goat virus-cum-anti-serum method of immunisation. The immunity conferred is of about 4 years duration, as indicated in the tests, so far, carried out."

53. Lastly, I would like to give below two letters received by me one dated 17th January 1955 from Sir Herbert Broadley, Acting Director-General of F.A.O. and an other from the Phillipines:

(1) "The unqualified success of the IV World Forestry Congress, which brought together at Dehra Dun so many participants from such a wide range of countries, has confirmed in the eyes of the world the leading part that India plays in forestry, and particularly in tropical forestry. All the participants have come away with vivid impressions of the importance accorded to the role of forests in physical, social and economic welfare of India's peoples. The part that the Forest Research Institute has had to play in achieving this, its capacity for accepting additional responsibility as a result of the renewed interest and activity, suitability and enthusiasm of the Indian Forest Service Staff are all realities of which the forest experts who attended are now most definitely aware."

"Tribute has already been paid to your essential contribution in the field of forestry by the action of the Congress in unanimously electing you its Honorary President. I should like to add to it and express to you personally my gratitude for the fine work that has been done in placing India in so enviable a position, and offer you my congratulations on the great success of the IV World Forestry Congress."

"Without your collaboration and active support, no such results could have been possible."

"I look forward with confidence to seeing India continue to lead the world in matters of tropical forestry under your able and devoted guidance."

(2) Letter dated December 24, 1954, from Mr. Juan P. Torres, Ph.D., Chief, Agronomy-Horticulture, Division, to Minister for Agriculture, New Delhi.

"We are deeply moved with special interest in the improvement you have made on your rice industry about which we have read in the September 1954, issue of the Readers' Digest. The new methods of rice growing that

you have adopted is indeed a revelation to us and we are looking forward to do likewise in our country if we shall know more of the details.

Please furnish us a copy of your brochure and circulars of instructions to the farmers for our reference and we should like to obtain if you could send us about 100 grams seeds each of least 3 to 5 rice varieties that you are growing that produce 200 or more canvans (one canvan equals £3.6 kilograms of rough rice per hectare, for observational tests in the Phillipines).

We shall furnish the report of the results of the study if so desired."

Yours sincerely,
P. S. Deshmukh.

LIST OF APPENDICES

- Appendix I—Speech by Dr. P. S. Deshmukh, Union Minister of Agriculture at the inauguration of the 21st Annual Show of the Bombay State Poultry Association on the 8th January, 1955.
- Appendix II—Broadcast by Dr. P. S. Deshmukh, Union Minister of Agriculture on 10th January, 1955 in connection with the Third anniversary of the introduction of the Japanese Method of paddy cultivation in India.
- Appendix III—Inaugural Speech by Dr. P. S. Deshmukh, Union Agriculture Minister delivered at the inauguration of a Pilot Scheme for the eradication of rinderpest at Dharwar.
- Appendix IV—Sarvodaya Area Scheme of Arvatgi.
- Appendix V—Extracts from a note on the agricultural activities in Dharwar district particularly the Hangal Taluka.
- Appendix VI—Summary of a note on the Forests of Coorg State by Shri N. Trimurthi, I.F.S., Conservator of Forests in Coorg.
- Appendix VII—Short note on Dundali Collective Farming Co-operative Society, Saniwarsantha.
- Appendix VIII—Brief note on the working and achievements of the Nehru Colony of Harijan Welfare Co-operative Society Ltd.
- Appendix IX—Statement containing yields of paddy & jowar obtained by the cultivators in the Dharwar District.
- Appendix X—Brief report on the development activities of the Forest Department, Coorg.
- Appendix XI—Note on Scheduled Tribes in Coorg.
- Appendix XII—Speech delivered by Dr. P. S. Deshmukh, Union Minister of Agriculture on the 18th January, 1955 on the inauguration of Joint Conference of All India Veterinary Association & the Madras State Veterinary Association.
- Appendix XIII—Brief note on the main recommendations of the Central Tobacco Research Institute.
- Appendix XIII-A—Speech of Dr. P. S. Deshmukh, Union Minister of Agriculture on the occasion of laying the foundation stone of the Central Tobacco Research Institute, Rajahmundry on the 20th January, 1955.
- Appendix XIV—Brief Summary of the Recommendations of Bhide Committee on Tractor Servicing.
- Appendix XV—Note describing the establishment of dairy units in Madhya Pradesh State and the difficulties encountered.
- Appendix XVI—Brief note describing the land problems and the land reforms undertaken in various countries of Asia and Far-East.
- Appendix XVII—Constitution of the Canadian Federation of Agriculture, as amended upto January, 1949.

Appendix XVIII—Significance of Agricultural Week & Farmers' Organisation.

Appendix XIX—Extracts from D.O. Nos. 7499-Agr-54/24 & DM-55/266, dated the 6th and 21st January, 1955 from Shri Partap Singh Kairon, Development Minister, Punjab to the Union Minister of Agriculture.

Appendix XX—Extracts from D.O. No. MA.179-11320-XGMF, dated the 10th January, 1955 from Shri S. L. Tiwari, Minister for Agriculture, Madhya Pradesh to Dr. P. S. Deshmukh, Union Minister of Agriculture.

Appendix XXI—Extracts from D.O. No. 153106-BIII/54-6, dated the 31st January, 1955 from Shri M. Bhaktavatsalam, Minister for Agriculture, Madras to Dr. P. S. Deshmukh, Union Minister of Agriculture.

Appendix XXII—Statement showing the action taken by the various offices concerned on the Recommendations of the State Ministers' Conference held in September, 1953 regarding contact between farm public and Agricultural Research Institutions.

Appendix XXIII—Note showing the work done by the Central Soil Conservation Board.

APPENDIX I

INAUGURAL SPEECH BY DR. PANJABRAO S. DESHMUKH, MINISTER FOR AGRICULTURE, INDIA, ON THE OCCASION OF THE 21ST ANNUAL POULTRY SHOW OF THE BOMBAY STATE POULTRY ASSOCIATION HELD ON 8TH JANUARY, 1955.

At the outset I must thank the Bombay State Poultry Association for asking me to inaugurate their Twenty-first Annual Poultry Show, and I am glad that it was possible for me to be present with you on this occasion.

2. These Shows and Exhibitions not only serve as a means of publicity and propaganda but they also inculcate a spirit of competition among the breeders, thereby providing a very desirable impetus for the development of improved varieties of livestock. They have now come to occupy an important place in our livestock development plans, and in most places they have become more or less a regular feature. The Central as well as the State Governments are fully alive to the value of livestock shows, and they are affording them every possible encouragement, financial as well as otherwise.

3. A new approach to better production initiated exactly two years ago in the shape of the Japanese method of which Bombay may rightfully claim to be the home combined with slightly but not wholly better co-operation of Nature, has achieved something like a revolution in food production. Not all people know how this happened and not a few are reluctant to give the credit where it is due. Innumerable experts, paid and unpaid, many wise economists and basketsful of theorists had not long ago, upto about 12 to 15 months ago, to be precise, had as a matter of scientific investigation and meticulous mathematics, solemnly propounded the theory that with India's growing population, there was no other fate awaiting India except continuous food scarcities, eventual famines and starvation, ending ultimately in wiping out the Indian population. One followed the other, and so it became an established and unquestionable proposition that as the history of Indian Agriculture showed, there was no pros-

pect of India being self-sufficient in food, never, never. To many the increasing population became a nightmare. But the most unexpected and uncalculated happened. State Governments and agriculturists listened to our request and responded to our call. The result is there for everyone to see. And, fortunately, this is not confined to rice only. Juar, Bajra, Maize and Ragi have also increased in larger average production, and so have oilseeds, cotton and pulses. We are now no longer concerned with deficits and deficiencies, but exact opposite, unsaleable and somewhat oppressing surpluses. Many of the Planning Commission's targets are completely burst. And yet I do not like to say that we have reached self-sufficiency. I do not like it for two very important reasons. Firstly, I do not want any one to forget how our friend the Monsoon can make hell out of heaven and *vice versa*. More irrigation can certainly help us a lot and be a very reliable insurance. But we should also never forget that lack of rain can dry up many of our irrigation tanks. Only two years ago the great Krishnaraj Sagar of Mysore was dry and so were other tanks which supplied water and power to Madras. Nor can improved methods help us much if there is no rain or too much rain. The second reason is that our standards of nutrition are yet appallingly low with the result that the seeming surpluses are not in my view real surpluses. It is, therefore, my considered opinion that our people should be able to consume much more food and we should make a determined effort to give them the right kind of food.

4. There still exists a great shortage of foods of animal origin, like milk, meat, fish and eggs, which provide the animal proteins, so essential for building a healthy nation. The majority of our countrymen subsist on a vegetarian diet in which milk and milk products are the only source of animal protein; and even these are in such short supply that their over-all consumption is extremely low. While the prejudice against animal flesh has as yet still to weaken appreciably, it is gratifying to note that of late there has been a gradual, though slow, relaxation of the taboo against consumption of eggs. This is apparently due to a growing realisation of the fact that there are two types of eggs laid by the hen, viz. fertile eggs and infertile eggs. The fertile egg contains the embryo which develops into a chicken. The infertile egg, which may well be called the vegetable egg, is completely devoid of life; and since it contains neither any living matter nor any substance capable of

giving rise to a living creature, consumption of such an egg need not be looked upon as sacri-lege. Mahatma Gandhi was quick to appreciate this fact and he freely advocated the inclusion of eggs in the human dietary.

5. India possesses roughly one-tenth of the world's poultry population, but the egg-producing capacity of our 73 million or so fowls and ducks is very poor. Thus, whereas in most other countries the average annual egg production is about 120 per laying bird, in India the figure is only 53. Moreover, the size of our eggs is so small that an average egg laid by a *desi* hen weighs only 1-1½ oz. as compared to 2-2½ oz. in the case of eggs laid by the improved foreign breeds. The present output of eggs in India allows only four eggs to a person in a whole year, but according to our human nutrition experts, the optimum requirement is one egg a day per adult unit, of which our present human population comprises about 363 million. From this you will realise that it is imperative that we make special efforts towards bridging the huge gap and achieving the target of producing over one-hundred-thousand-million eggs every year.

6. The causes for our low egg production are many. Scientists tell us that the original home of the domestic fowl, of which there are now many varieties in the world, was in India and the neighbouring Asiatic countries. In spite of this, the indigenous poultry in India has remained undeveloped, while many fine breeds have been evolved in several other countries. The Indian Fowl has dwindled to its present state of deterioration through centuries of neglect and indiscriminate breeding. Experiments aiming at improvement through selective breeding have shown that the Indian fowl has not altogether lost its inherent potentiality for attaining satisfactory levels of egg production under conditions of good management and feeding. Improvement through selective breeding, however, is a time-consuming process, and it will be many, many years before we can hope to bridge the gap. Experience acquired through the past few decades has shown that a much quicker process would be to effect improvement through grading up with such foreign breeds as white Leghorn, Rhode Island Red, Barred Plymouth Rock, Black Minorca, Australorps, etc. Imported by various Government and private agencies, these foreign breeds have been found to thrive well in India and to lay on an average over 150 eggs a year. At present only 1.4 per cent of the fowls

in India consists of these imported breeds and their progeny. This means that more than 98 per cent. of our fowls still remain to be improved.

7. Convinced beyond doubt that people of India respond to all sensible calls by the success I attained in preaching the Japanese method, and anxious that nutritional standards of ours must be quickly improved, I decided that poultry was a thing which would yield quick results if it were subjected to the same treatment as rice production. But many of the wheels of our administration still move more slowly than are to my taste. The result was it took me a whole year to take up the matter in right earnest. Lack of much attention to this subject in the first Five Year Plan created some difficulties. But I am glad that I have not only succeeded in having a big drive more or less approved to be provided in the Second Five Year Plan, but it is gratifying that I would not have to sit with folded hands till the period of the Second Five Year Plan commenced.

8. Thus while the Central Government are proposing to launch at an estimated cost of Rs. 70 lakhs a countrywide scheme for establishing 150 poultry development centres in the various States during the Second Five Year Plan period, a pilot scheme has already been sanctioned for setting up 15 Centres immediately as a prelude to the main scheme. Under the scheme it is proposed to import baby chicks in large number from abroad, rear them for a few months on well organised farms in India, and finally to distribute them in concentrated areas for breeding and grading up work in the States. This is the utmost I could get done under the present circumstances, but I hope we shall succeed in creating a countrywide interest for poultry development. I have no doubt all our efforts would be highly fruitful.

9. But all attempts at improvement by scientific breeding would be doomed to failure if steps are not simultaneously taken to ensure satisfactory rearing of the graded-up progeny in the villages by providing them suitable housing conditions adequate nutrition and protection against diseases, and also to ensure good marketing facilities. It is especially in these matters that private agencies, such as this Association can supplement the measures undertaken by Government through judicious propaganda, demonstrations, etc. The vast majority of our

village fowls are maintained under primitive conditions. Predatory animals and birds cause very heavy losses. The flocks are mainly left to forage for themselves, and scarcely any supplementary feeding is practised. For maintenance of satisfactory levels of growth and health, in general, and production of eggs, in particular, it is important to feed such materials as meat offals for providing animal proteins, green feeds for providing vitamin A and other nutrients, and shells, etc. for providing lime. Time was when our poultry industry was threatened with annihilation owing to diseases, but today, thanks to the researches conducted at the Central and State Veterinary laboratories, we are in possession of very effective means for tackling the poultry disease problems. A very efficacious vaccine has been developed for protecting birds against Ranikhet disease, and preventive or curative remedies are also available for other diseases like fowl pox, tick fever, concidiosis, etc. Thus, I might say that the field is now set for attempting an all-round development of our poultry industry, and it is my fervent hope that our poultry enthusiasts and others concerned will all co-operate in the task of achieving the objectives within a reasonable time. I am sure the Bombay State Poultry Association will continue to make useful contributions towards improvement of poultry in this State which possesses roughly one-tenth of the entire poultry population of the country. This Association, I understand, was formed in 1926, and it has today some 350 members whom it helps in obtaining good pedigree stock, feeds and information on recent trends in poultry development. The last poultry show, which was also held in Bombay exactly one year ago, is said to have been one of the largest of its kind in the country. This year, I am told, two new sections have been introduced, viz., the Juniors Section and the Baby Chick Section. I am confident this year too the labours of the organizers will be crowned with an encouraging degree of success and the show will prove profitable to the competitors and instructive to the visitors in many ways.

APPENDIX II

BROADCAST BY DR. PUNJABRAO S. DESHMUKH ON 10TH JANUARY 1955 ON THE THIRD ANNIVERSARY OF INTRODUCTION OF JAPANESE METHOD OF PADDY CULTIVATION.

I could not let the 10th of January pass without addressing my listeners. Exactly two years ago this evening, I broadcast my very first talk on the All-India Radio preaching the Japanese Method of paddy cultivation. I had moved in the matter as fast as the circumstances permitted. As you may remember, I was sworn in as Minister on the 13th of August, on the Gopashtami Day of 1952. On the 19th September, the President Dr. Rajendra Prasad wrote to me drawing my attention to the experiments under the Japanese Method conducted at the Kora Kendra at Bombay under the Gandhi Memorial Fund Organisation. I accordingly visited Kora Kendra soon after and started the study of the Japanese Method of rice cultivation in right earnest. When I went to Calcutta some time later, I found that the Director of Agriculture of West Bengal had tried to preach this method in Orissa, several years ago, but he could make very little headway. Even the Kora Kendra people tried their very best to popularise it, but many so called experts and people in authority turned a deaf ear to it. Many others opined that there was nothing to learn from it, and that the indigenous methods having been tried for generations and centuries were the best, and even if any improvement was necessary, it was all well-known to the Department of Agriculture and veteran farmers. But as the visit to Kora Kendra and further actual study of the method convinced me of its original character at least in certain respects, I had decided to push on forward.

2. On the 8th of January, 1953, I was called upon to preside over the Food Ministers' Conference in the absence due to illness of the late Shri Rafi Ahmed Kidwai. I referred to the Japanese method there and suggested if it might not be possible to loan to the rice-growers a maund of ammonium sulphate to be repaid with one maund of rice. Although this was not accepted straightway, the need for making available fertilisers on loan to the rice-cultivators

was recognised, and accordingly a sum of Rs. 8 crores was set apart for this purpose. Similarly the price of sulphate of Ammonia was reduced from Rs. 365 to Rs. 290 per ton. All this is now part of the history of Indian agriculture. But it is as well to remember the main events. Recounting them on this day, the third Anniversary of its propagation, would I hope therefore not considered inappropriate.

In the very first year the Government of India spent hardly a single pie excepting what was spent on getting the various publicity material ready. The campaign was inaugurated on the 15th of March, 1953, over the whole country. On this day I broadcast another talk and so did many of the State Ministers of Agriculture. Although this was the first campaign of its kind, the response in spite of the opposition of some and doubt reluctance and suspicion of many was splendid. Many officers of the Department of Agriculture in the various States took the keenest interest and the Kora Kendra people went round the whole country in organising demonstrations. They had also asked for a large sum of money from the Gandhi Smarak Nidhi, but actually they hardly spent even half a lakh. But the campaign gathered considerable momentum and a large number of peasants came forward to give it a trial. In 1953-54, i.e., in the very first year of the campaign, we were able to cover more than four lakhs of acres on which we got an average production of 38.72 maunds per acre. This works out at 3,302 lbs. per acre as against our average production of less than 700 lbs. per acre and the Japanese average of 2,250 lbs. per acre. It should be remembered that our average over 50 years ago was over 900 lbs. per acre, but this had progressively declined till it came down to as low a figure as 643 lbs. per acre in 1951-52.

I do not think anybody would contend that now that we are self sufficient in most foodgrains, and surplus in rice, we need not worry ourselves much about the campaigns. I do not worry with such a point of view, because I do not wish to be complacent to any degree. We have also the uncertainties of monsoon always to dread and face. We must, therefore, keep ourselves always alert because it is not unlikely that good production of one year may be more than absorbed by another lean year that may succeed it. It may also be argued that larger production may result in further fall in prices. But I consider that the fact that the

prices are falling is an important reason why we should increase production. Although there is some relationship between larger production and fall in prices, an average cultivator, if he has to keep his head above water, must try to make good his losses due to falling prices by larger production. I therefore hope that nobody would slacken efforts in the way of striving to increase production in India which even with the progress that we have made, continues to be one of the lowest in the whole world.

Secondly, it is important that we should do what we have done in the case of paddy with respect to other crops as well. It is highly gratifying that from the beginning I appealed to people to apply as a matter of pure common-sense agriculture the essentials of the Japanese method of paddy cultivation to at least such crops as maize, bajra, juar, cotton etc. and I feel proud to say that the people have not been slow in taking up the suggestion. It is also well to remember how we were badly bitten in the case of the production of sugar as well as jute. After reaching the level of our requirements, there was a steep fall in production leading to large imports of both. In cotton we have made remarkable progress and we hope to keep it up. But none-the-less we have yet much ground to cover and therefore there is much room for the kind of campaign that we organised for paddy in 1952-53. I therefore do not wish that we should allow any slackening of our efforts. We cannot also forget that although we may have produced sufficient for our present needs, we have yet to provide adequate nutrition to our people. This is unlike the old Grow-More-Food Campaigns and other activities when we wanted to eat less and not eat what they liked. We preached fore-going of meals and asked people to spare rice.

I am glad the small effort we made in improving sugarcane production has yielded results. For the next sowing of sugarcane I would like sugarcane-growers to keep ready, enough stocks of ammonium sulphate, so that some at least of it may be used before they put in the seed in the soil. For the sugarcane crop it is necessary to plough deep. The other steps also have been indicated in pamphlets which have been already printed for the purpose and are being distributed.

In the case of the Japanese method also, there are quite a few new ideas that have come up. I want these ideas to be studied carefully by the various Agriculture Depart-

ments in the States and adopt them with or without modifications as may be considered necessary under their own conditions without delay. The Japanese themselves are perpetually adopting newer methods. They have recently sent me what is described as the "Wave-shaped Rice Cultivation Method". I have referred to this and given it in *extenso* in one of my circular letters. This "Wave Shaped Rice Cultivation Method" was sent to me in a note by the President of the Central Commercial Company of Japan. I gave it in full as Appendix III in my Circular Letter No. XV for the last month, i.e., December 1954. It has been stated in the note that with a spacing of 18"x 4" the yield obtained was 5,424 lbs.; with 30"x 2½", 8,532 lbs.; and with 42"x 2" 10,184 lbs. A few more details also are given in that note.

The progress in better cultivation of wheat is not so striking and it is my intention to take it up sooner or later.

We have also initiated steps for the better production of coconut and pilot schemes are being taken for expansion of the poultry industry in the country.

I view all these activities with considerable confidence, generated especially by the success we achieved in the propagation of the Japanese method of rice cultivation. Even in this field there is still ample scope. I do not think we will attain the somewhat excessive target of 2 million tons during the current year 1954-55. The information so far received gives us a total of only 5½ lakh acres, but we might easily double our figure of the year 1953-54 by the time all the rice crop for the year 1954-55 is reaped. But even if we reach a target of only one million acres, our achievement would cover only 1 1/3 per cent. of the total area under paddy since it was 76.6 million acres in 1953-54. Of course, even this small and insignificant percentage makes a tremendous difference, because the yield in most cases is anything between 4 to 10 times as much. Even so, I would suggest that even those cultivators who have not taken to it, may practise it on as small an area as 10'x10'. I am sure for such a small area there could be neither any difficulty about labour, nor about fertilizers. In fact, I would not even advise them to use fertilizers provided they use good manure prepared out of night-soil and urine. If every cultivator who has not yet practised the Japanese method, practices this on this insignificant area, it will not only give him larger yield, but convince him of the

efficacy of what we are preaching. I am aware that there are many areas where cultivators are forced to resort to broadcasting. Even in these cases I would like to cultivators to resort to transplanting over as much area as possible. In extreme cases, experimenting with instantaneous transplanting may also be tried. This is, of course, only for those who cannot under the peculiar circumstances do better than what is suggested here. As a matter of fact, there should be no difficulty even in cases where broadcasting has to be practised, to resort to transplanting in lines at least over a portion of the field, give it the manure and fertilizers which are prescribed and do the hoeing and weeding as suggested under the method. There is, therefore, great deal more work ahead for us all in trying to convince the agriculturist to practise these above methods, and to see that no cultivator is left who does not experiment by himself on a limited piece of land. Similar things could be practised so far as all other crops are concerned. Cotton could be planted with more and wider spacing, could be given more manure and fertilizers, and the same could be tried in the case of such crops as jute, wheat, sugarcane, etc.

For all these reasons I thought it worthwhile reminding you of what we did in the past, and tell you about the success we attained. I am sure everyone of you would agree with me that we cannot afford to take things easy. We must strive ceaselessly for a long time to come so that we meet all our growing needs of agricultural produce. It is only thus that we would place ourselves out of dangers of scarcity and emerge as a stronger and healthier nation.

JAI HIND

APPENDIX III

SPEECH OF DR. PUNJABRAO DESHMUKH, MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA AT THE INAUGURATION OF THE PILOT SCHEME FOR ERADICATION OF RINDERPEST AT DHARWAR ON 10-1-1955.

I consider it a privilege to have been asked to inaugurate this scheme which is being initiated in Bombay as a part of the pilot project for the eradication of rinderpest. The other part of this scheme has already gone into operation in the State of Andhra. I expect the remaining constituent States will also take up the scheme at an early date.

2. Contagious and other diseases, besides causing a large number of deaths, reduce considerably the vitality and the working efficiency of the animals. The Planning Commission has attached considerable importance to the control of livestock epidemics. Of all the contagious diseases, rinderpest has been considered as the most important, as it is responsible for 60% of the total mortality caused by such diseases in cattle. Rinderpest has been taking a heavy toll of livestock in this country and consequently paralysing the agricultural operations and seriously affecting the rural economy.

3. Intensive researches conducted by our veterinary scientists during the past few decades have led to very efficacious vaccines being developed for combating this disease. These vaccines have already been tried on a large scale in almost all parts of the country with very successful results. The experience acquired has been so encouraging that our progressive veterinarians quickly envisaged the possibility of completely eliminating rinderpest from the country, and they lost no time in impressing this on the Government. Elaborate discussions led to the formulation of carefully chalked out programmes which should lead to extremely valuable results with the full co-operation of all those concerned not only in the Central Government

but also in the various State Governments. The Planning Commission therefore, recommended that the work in regard to eradication of rinderpest should be initiated as early as possible. The Government of India carefully examined the matter and after considering the recommendations made by the various expert bodies, set up a Central Committee to control, administer and co-ordinate the work regarding the eradication of rinderpest from India.

4. As a prelude to the countrywide eradication campaign, the Government of India has sanctioned at an estimated cost of Rs. 10 lakhs a pilot project with the object of eradicating the disease from the southern Peninsula, i.e. the area comprising the States of Madras, Travancore-Cochin, Mysore, Coorg, six districts of Andhra below the river Krishna, districts of Dharwar and North Kanara in Bombay, and Raichur district in Hyderabad State. This pilot project, it is expected, will provide the requisite experience and knowledge to tackle the problem on a countrywide scale in the second Five-Year Plan period.

5. Under the pilot project, mass immunization of all adult cattle and buffaloes, numbering about 10 million heads, will be carried out in this area. At the same time to guard against the ingress of rinderpest to the States of Madras and Travancore-Cochin, which are at present free from the disease, quarantine stations are to be established all along the Madras border and the existing ones strengthened along the eastern and western coasts. A special building has been constructed at the Indian Veterinary Research Institute, Izatnagar, for the production of the vaccines. The Food & Agriculture Organization of the United Nations has supplied machinery and specialists to initiate mass production of freeze-dried vaccines. Transport vehicles required for the field campaign and refrigeration facilities to keep the vaccines potent have been provided by the Union Government to the State Governments on a loan basis. The Union Government is also sharing on 50:50 basis with Part 'A' & 'B' States and on 25:25 basis with Part C States, the expenditure on account of additional staff, etc., required for the campaign and the cost of the vaccine.

6. In Bombay State the scheme has been sanctioned for the districts of Dharwar and North Kanara as only these

two districts come under the area selected for the Pilot Project. We are thankful to the Bombay Government who, inspite of some financial difficulties, agreed to participate in our Pilot Project. I hope they will extend the same co-operation when the scheme is extended to other areas in the future.

7. The countrywide scheme for eradication of rinderpest will be taken up during the second Five-Year Plan period. When that scheme is successfully completed, it would prove of immense help in the conservation of our cattle wealth and in food production in our country, thereby contributing substantially to the prosperity of the nation. How quickly the disease can be eradicated from the whole country would depend largely on the efficiency and the speed with which the pilot plan progresses. I am confident the enthusiasm and labours of our laboratory and field workers aided by the co-operation of our organizers and administrators, will carry the whole scheme to the successful termination which this gigantic task deserves. It gives me great pleasure to inaugurate the Pilot Project for eradication of rinderpest in your State.

JAI HIND

APPENDIX IV

DHARWAR DISTRICT SARVODAYA SCHEME, ARVATGI.

A short report of the work done during the last 5 years, ending 31st March, 1954.

The Dharwar District Sarvodaya area comprises of 42 villages in Malnad area of Dharwar Taluka. The total area being 107 Sq. miles, the total population being 17938. This is the most backward tract. Of the 42 villages 14 are depopulated. The lands have been lying fallow for generations for want of cultivators. Sarvodaya work was started in the month of June 1949. The main features of the activities are: Education, Agriculture, spread of village industries, improvement of communications, construction of sanitary dwellings, wells and school buildings and the spread of cooperative societies etc.

I. *Agriculture*.—The main work of the scheme is agriculture. Two colonization schemes—one at Arvatgi and another at Holtikoti—have been functioning in our area. These schemes are worked out by the local Tenant Farming Societies. There are in all four Tenant Farming Societies viz. Arvatgi, Holtikoti, Nagalavi and Kumbarkop. 1050 acres of fallow land so far, has been brought under cultivation in our area. On account of the successful working of the colonization scheme at Holtikoti—a village which had neither any population nor an inch of land under cultivation—the village is today humming with the populace and rich crops. There are 19 decent houses already constructed, the population being 300 and the cattle 385.

Two minor irrigation tanks at Mandihal and two at Kadabagatti and one at Arvatgi are repaired. One big tank at Mandihal was constructed at the cost of Rs. 45,527. This irrigates 320 acres of land. Another big tank at Arvatgi is under construction now, which will irrigate about 700 acres of land. Three Bandharas near Mugad have been constructed. There is sufficient scope for construction of new tanks in our area. Four pumping sets have been distributed in our area and they have been doing good work.

II. *Education*.—Gradually, the primary schools are on the increase. There are five D.S.B. schools, 11 voluntary schools and 3 Sarvodaya schools. Eight one-roomed primary school buildings have been constructed at the cost of Rs. 28,000, Rs. 8,000 being the local contribution. These school buildings are in the villages of Arvatgi, Mandihal, Kumbarkop, Kadabagatti, Hulikeri, Kalkeri, Lalgatti and Salkinakop. A Balwadi is conducted at Arvatgi. Two other Balwadis were conducted in two other villages for two years—one at Nigadi and the other at Mandihal. Five shibirs were organised during the period and one was entirely for women. A tailoring class has been conducted at Arvatgi.

III. *Village Industries*.—150 charkhas and 40 taklis have been distributed in the area. A khadi Bhandar has been opened at Alnavar. A nomadic race of Gopalakh at Arvatgi has been organised under a Dairy Society which has been registered and functioning. These Gowalis have been supplying 200 seers of milk to Dharwar. 265 cows, 16 breeding bulls and 15 buffaloes have been distributed. There are five poultry farms and they are run systematically. Hand-pounding of paddy is another village industry. In all 12,195 Bengali Mounds of paddy was pounded. 35 cement chakkies and five winowing machines have been supplied to the villages. Besides this, some 500 wooden chakkies have been working. There are many other small scale industries such as manufacture of tiles, bricks, baskets, mats, and stitching of patravlis etc. which are encouraged.

IV. *Health & Hygiene*.—There are eight small dispensaries in our area. They distribute medicines to the doors of the villagers. These dispensaries are conducted by our workers. There is one trained Vaidya and two stockmen, who often visit our centres. So far, 14,410 patients and 5,440 cattles have been treated. Wardha type of latrines and urinals have been popularised. The Sarvodaya Backward Class Housing Society has constructed 18 houses, the Holtikoti T.F. Society has constructed 19 houses and 35 houses are constructed by the Sarvodaya Scheme. Eight drinking water wells are dug in the villages. On observance of national days, 'safai' is an important item of programme. Many villagers participate in these programmes.

V. *Communications*.—18 miles of kacha approach road and four mile length of village roads have been constructed at the cost of Rs. 19,382, villagers' contribution being Rs. 10,000/-.

VI. *Cooperative Activities*.—There are four Tenant Farming Cooperative Societies, four Forest Labourers Coop. Societies, two M.P. Societies, one Backward Class Housing Society, one Waddar Labourers Coop. Society and one Dairy Society. All these societies are sponsored by the Sarvodaya Scheme and invariably our workers have been working as secretaries.

VII. *Propaganda*.—All the national days are observed in all our centres. Two 'Paad Yatra Morchas' were organised. Two press Conferences were convened. Many prominent leaders like, Shri Morarji Desai, Chief Minister of Bombay State, Shri D. P. Karmarkar, Minister for Commerce, Govt. of India, Shri M. P. Patil, Minister for Cooperation, Shri Naik Nimbalkar, Minister for Public Works, Bombay State, Shri R. S. Hukerikar, Chairman, Bombay Legislative Council and Shri, K. F. Patil and Wandrekar, Dy. Ministers visited our centres. The Sanchalak, the workers and the District Committee members often tour the area and address meetings and solve local problems. A small khadi and village Industries Exhibition, a cattle show and a ryot Conference were organised at Arvatgi.

VIII. *Cultural Activities*.—There are in all eight sub-centres, Arvatgi being the Head Office. In all our Centres, Ashram routines are carried out viz. two times prayer, one hour sacrificial spinning, one and a half hour manual labour. Occasionally, villagers also participate in these functions. Villagers are encouraged in organising village dramas, folk dances and such other entertainments. Community meals are often arranged. Untouchability is a thing of the past at Arvatgi. Very recently, this village has been awarded a prize of Rs. 500/- by the Dist. Development Board for the removal of untouchability in the village. As far as possible village problems are solved in the villages only.

A statement showing the works completed and the popular contribution received is shown below:—

Upto 31-3-54.

Works	Nos.	Govt. Grants	Govt. Loan	Popular contribution
School Buildings	8	20,000	..	8,000
Wells	8	29,582	..	7,020
Houses by Sys.	37	..	57,890	12,000
Houses by Sarvodaya	37	..	22,466	28,000
A farm house	1	..	2,372	1,200
Cattle sheds	2	800	..	..
Workers Quarters & Office	5	7,246	..	..
Kacha roads	18 M.	17,545	..	8,000
Village roads	4 M.	1,837	..	10,000
Breeding bulls	16	3,200	..	4,800
Cows	265	11,435	13,538	13,26
Buffaloes	15	..	1,500	1,50
Farm	1	..	5,800	1,40
Silo pits	2	1,000	..	40
Oil engine sets	4	..	7,455	4,00
Bandharas & tanks	8	50,518 *	..	6,95
		1,43,163	1,11,021	1,06,52

*The sum of Rs. 45,527 spent by the Irrigation Department for construction of Mandihal tank is included.

APPENDIX V

EXTRACT FROM A NOTE ON THE AGRICULTURAL ACTIVITIES IN DHARWAR DISTRICT PARTICULARLY THE HANGAL TALUKA.

A. *The progress achieved so far in the extension of improved varieties of crops, fertilisers and insecticides etc.*

(i) *Paddy*:— There is an area of 1,81,000 acres under paddy in this district of which the areas suited for improved varieties is about 80,000 acres. This whole area has been covered with improved varieties of paddy during the last 7 to 8 years. For the present it is arranged to maintain the purity of seed by distributing the seeds of the first three generations to the extent of 6,000 B. Mds to cover 80,000 acres.

(ii) *Manure mixture*:—There was good demand for manure mixture in this district during 1949-50, 1950-51 and as such a quantity of about 1,500 tons could be distributed. The rates for the said mixture were increased thereafter from Rs. 15/- to Rs. 19/12/0 and then to Rs. 26/- per bag of 160 lbs. As such the demand for the said mixture was considerably reduced and hardly a quantity of about 500 tons could be sold. During the year a quantity of 300 tons was distributed to cover an area of 2,400 acres.

(iii) *Ammonium sulphate*:—There is very limited scope for this fertiliser as there are no irrigation facilities in this district. However, there is demand for about 200 tons of Ammonium sulphate in this district from the cultivators of Malanad and Gadinad areas.

B. *Pests and diseases*:

(i) *Control of Jowar Smut*:—Sulphur is very effective fungicide in controlling Jowar Smut. Previously sulphur was being distributed free of cost. Now it is being sold at

economic rate. This year about 1,263 lbs. of sulphur dust was distributed to treat sufficient seed for sowing an area of 52,960 acres.

(ii) *Pig proof wire fencing*:—The scheme for supply of wire fencing to the cultivators of Malanad zone was started since 1950. So far about 62 miles length of pig proof wire fencing was distributed to the cultivators of Malanad area both in Dharwar and Karwar Districts. The first 35 miles length pig proof wire fence was sold at the concession rate of Rs. 50/- per bundle of 100' length and 4' height. The remaining 29 miles length fence was sold at the cost price of Rs. 70/- per bundle. There is yet a stock of 2,253 bundles roughly about 44 miles length in this district and there is no demand for the same.

(iii) *Shikar work*:—46 Gun clubs are working in this district. The members of these clubs are taking keen interest in organising hunting parties. As a result of working of these clubs for the last so many years the number of wild pigs have been considerably reduced. As such there is less trouble to the economic crops like paddy and sugarcane. Since 1946 to 1954, 9,654 pigs were killed. 400 guns are working.

D. Miscellaneous:—(i) *Agricultural Demonstration Centres*:—There are 21 Agricultural Demonstration Centres each managed by an Agricultural Assistant, one depot is attached to every A. D. C. where improved seeds, manures, implements and insecticides are stocked and supplied to the cultivators. Improved methods of agriculture are demonstrated on these centres and cost of cultivation of various crops grown are maintained. These Agricultural Demonstration Centres are very much popular amongst the cultivators. Approval for opening 7 more new Agricultural Demonstration Centres have been received.

(ii) *Taluka Development Boards*:—There are seven taluka Development Boards, 12 Tenant Co-operative Farming Societies, one Dairy Co-operative Farming Society

and about a dozen Better Farming Societies in this district. Besides, this there is commercial agricultural concern which has undertaken cultivation of crops on an area of about 800 acres in Dharwar taluka. The District Agricultural Officer Dharwar offer suggestions and advices to all above mentioned institutions whenever necessary.

(iii) *Tractor ploughing*:—There are two Government Tractor Units consisting of 20 tractors and two Bull-dozers in this district. Each unit with 10 tractors and one Bull-dozer ploughs about 6,000 to 7,000 acres in the season. Besides there are about 160 tractors owned by private individuals.

(iv) *Vegetable Extension*:—The question of supply of good vegetable seeds to the needy cultivators of this district is being attended by the District Staff. Annually the vegetable seeds worth about Rs. 3,000/- to Rs. 4,000/- is being purchased and distributed to the cultivators at cost price. Due to the strainous efforts in this direction since 1946 an area of 2,000 acres has been increased under vegetables.

(v) *Saswihalli Model Village Scheme*:—Saswihalli in Navalgund taluka has been selected for the Model Village. A sum of Rs. 84,780/- has been sanctioned by Sir Cusrow Wadia Trust Fund for various development schemes in that village. One multipurpose hall and a godown have been constructed, an area of 292 acres has been tractor ploughed to eradicate hariyali. And an area of 300 acres has been bunded on improved lines. One light tractor of Ferguson type with necessary accessories is purchased, breeding bulls and other implements are on hand.

(vi) *Tree planting*:—54,900 shady and fruit plants were distributed under the Tree Planting Scheme in the district in addition of over 3,100 coconut plants.

Community tree planting in waste land forms a special feature under the programme undertaken during the year in the district. The area comprising of waste lands have been allotted as 'Sanad' for the purpose.

The example of Sangur villagers in planting over 600 mango trees over an area of 20 acres as a community effort deserves special mention and the Government have also appreciated the work.

Similarly an area over 40 acres comprising of waste lands at Benchihalli village in Haveri taluka has been planted with 2,000 Guava seedlings, in co-operation with Devihosur Agricultural School Staff and Students.

At Timmapur, a village in N. E. S. Block, Dharwar an area of 10 acres has been planted with shady trees and improved grass sets. The work includes soil conservation, tree planting and grass land improvements.

(vii) *Kharif Jowar*:—Dibbling verses sowing trials have been arranged for the first time in the district and an area of 201 acres under kharif Jowar is dibbled. The condition of the dibbled crop at 16" and 18" is better as compared to the drilled crop.

(viii) *Cotton*:—An area of 153 acres has been dibbled and the condition of the crop is fair compared to drilled cotton.

(ix) "*Farmers' week and Officers' Day*":—Farmers' Week and Officers' Day were observed and arranged on Agricultural Research Station Mugad and Agricultural School Devihosur Farm. The Farmers Week and Officers' Day on Mugad Farm was organised under the presidency of the Collector of Dharwar.

(x) *Farmers' Shibir Scheme*:—"Farmers' Shibir Scheme" on Dharwar Agricultural Research Station was discussed in details with the Collector and the Shibir was organised during November, 1954. The expenditure of the "Shibir" was met with from the N.E.S., funds. A village Shramadana item at Govankop and Dandikop was also included in the Shibir programme.

SHORT NOTE ABOUT AGRICULTURAL CONDITIONS IN HANGAL TALUKA

Hangal taluka forms part of 'Malnad' region and the rainfall varies from 35" to 40". Paddy is the main crop which is grown over 57,000 acres. Out of this about 8,000 acres is grown under Dharama canal, 37,000 acres under tank irrigation and the rest 12,000 is a rainfed crop. Late, mid-late and the early varieties are commonly grown. Out of these 50 per cent. forms a mid-late 25 per cent. late and the remaining 25 per cent. early. Antarsal and Mugad varieties evolved on Mugad Rice Breeding Station are distributed and over 70 per cent. of the area is covered under the improved strains.

The practice of drilling paddy in above 'Ghat' areas is very common and rarely paddy is transplanted. The average yield of drilled paddy varies from 12 to 20 B. Mds. per acre, the maximum being 80 B. Mds. secured due to crop competitions. However efforts are made to induce the farmers to grow the crop under Japanese method since 1953-54 and as a result an area over 170 acres has been covered during the year under the scheme. Though the crop was promising, the long break over 40 days in the rains and unfavourable weather conditions affected the crop (Yelikerisal-4) under Japanese method during the year with Blue-beetles, Blast and Blight. Even then the yield of some of the plots cultivated under Japanese method varies from 40 to 60 B. Mds. per acre. Irrespective of the limitations efforts will be continued to bring the maximum area under cultivation with the object of increasing the production.

Mango Cultivation:—Alphanso and Piari mangoes are successfully grown in the taluka and considerable scope exists for extending mango plantation. A well equipped nursery established in the taluka will be of great help.

APPENDIX VI

THE FORESTS OF COORG STATE

By N. TRIMURTI, I.F.S.,^{*} CONSERVATOR OF FORESTS, COORG,
MARCARA.

SUMMARY

The State of Coorg is located on the eastern slopes of western ghats, the elevation varying mostly from about 2,000 to 5,000 ft. It slopes gently on the eastern side and steeply on the western. The rainfall varies from about 30 inches in some tracts adjoining Mysore State, to about 250 inches in some tracts on the western ghats. The forest type is very varied and can be divided into three definite zones depending on the rainfall. In the ghat forests with very high rainfall the forest is of the tropical wet evergreen type. In the region of 50 inches to 100 inches rainfall the moist deciduous type of forest occurs, and in the region of 30 inches to 40 inches rainfall there is the dry deciduous type. In the first zone of heavy rainfall evergreen species are found and the forests are magnificent, the trees being over 100 feet in height and reaching up to 20 feet and more in girth. In the moist deciduous zone very valuable teak of very good quality as well as rosewood of very fine colour and beauty occur, and in the dry deciduous zone sandalwood is found. The evergreen forests can produce about 8 lacs cubic feet of evergreen timber per year. The moist deciduous zone produces about 7 lacs cubic feet of hardwoods including teak, rosewood, etc. The dry deciduous forest produces about 100 tons of sandalwood per year. The natural regeneration in the evergreen forests is good. In the moist deciduous zone artificial regeneration by clear-felling and planting with teak is being carried out. The total gross forest revenue of the State is about 40 lacs of rupees and the expenditure is about 12½ lacs of rupees and the net forest revenue is about 27½ lacs of rupees.

LOCATION AND PAST HISTORY

The State of Coorg is located on the eastern slopes of the western ghats with a small portion on the western slopes of the ghats also. The total area of Coorg 1,586 square miles and almost all of this was covered with forests till recent times since the population was very sparse and only small areas had been cleared for cultivation till the end of last century, but in recent times more areas have been cleared and as such the wooded area of the state has progressively decreased.

2. At the time of the Coorg Rajahs the only products of importance from the forests of Coorg were sandalwood and cardamom. Most of the timber was treated as of minor significance as it had no value in that period and as such its exploitation was unrestricted. However, it did very little harm since the population was extremely sparse.

3. About the year 1865 the Coorg Forest Department was organized under the name of Forest Conservancy Department, and the forests of the State formed the jurisdiction of an Assistant Conservator of Forests who was subordinate to the Conservator of Forests of Mysore. The main object of the Forest Department then was exploitation. Valuable trees from accessible areas were felled and carted on permits to Mysore and also on the western side to Malabar. This system of unrestricted permits continued practically till the end of the 19th century. It was only then that first attempts at conservancy and systematic management of the forests were made.

4. However, even previous to this, attempts at raising small scale experimental teak plantations had been made in the south-east as well as western parts of Coorg dating from about the year 1870. Some of these plantations have been very successful.

5. Systematic attempts at permanent preservation of the forests was made only after 1890 and between 1890 and 1908 all the present reserve forests of the State were reserved, the rights in them defined, and their legal status clarified. This may easily be said to be the period when scientific management of the forests started in right earnest.

ORGANIZATION OF THE FOREST DEPARTMENT

6. The entire area of the reserve forests in the State is under the control of the Conservator of Forests who is the head of the Department. He is assisted by one Deputy Conservator. There are nine Ranges.

FOREST TYPES

7. With a range of annual rainfall from 30 inches to over 250 inches the tract exhibits vegetation of striking diversity. On the slopes of the western ghats which receive an annual rainfall of about 200 inches and more, the vegetation is of the tropical wet evergreen type. The more important timber species occurring in this area are *Calophyllum tomentosum*, *Dipterocarpus indicus*, *Dysoxylum malabaricum*, *Dichopsis elliptica*, *Hopea parviflora*, *Mesua ferrea* and *Vateria indica*. The Forests are impressive and magnificent. Many of the trees of the top canopy are over 100 feet in height with clean and straight boles, the girth at breast height of some of the trees being even 20 feet and more. In areas of lesser rainfall ranging from 50 inches to 100 inches the forests are of tropical moist deciduous type. They are mostly confined to the lower ranges of the hills in the south-eastern parts of the State. This is economically the most valuable type of forest since most of the important timber trees are represented here. The main timber species occurring here are *Tectona grandis* (teak), *Dalbergia latifolia* (rosewood), *Pterocarpus marsupium*, *Terminalia tomentosa*, *Lagerstroemia lanceolata* and *Adina cordifolia*. The Coorg State produces teak of fine quality which has very good reputation in the market. Also the rosewood of Coorg has very fine colour which is very much valued in the market. Teak tree reaches in places a girth of 20 feet and more and the rosewood in places a girth of about 15 feet. The third type of forest which occurs in drier regions on the north-eastern parts of Coorg with an annual rainfall of about 30 to 40 inches is of the tropical dry deciduous type. Its economic importance lies in the fact *Santalum album* (sandal) grows naturally here. The usual associates of sandal are *Diospyros montana*, *Zizyphus* spp., *Cassia fistula*, *Garuga pinnata*, *Albizia* spp. and *Anogeissus latifolia*.

AREA OF THE FORESTS

8. The statement given below shows the area of the State, the area of various classes of forest and the percentage of total area of the State under forests:—

Total of area of the State in Square miles	Area of the forest in square miles				Percentage of Reserve forest to the area of the State
	Reserv- ed forest	Woodlands outside Reserve forests owned by the State	Woodlands under private ownership	Total	
1,586	517	280	300	1,097	34

In calculating, the areas of both the woodlands outside reserve forests owned by the State and woodlands under private ownership are ignored, since the woodlands outside Reserve forests owned by the State are intended to be gradually passed on to cultivation by the State, and woodlands under private ownership are also being gradually converted into coffee and other plantations. Hence none of them can be taken as lasting forest assets.

REGENERATION

9. Natural regeneration is plentiful and comes up satisfactorily in the tropical wet evergreen forests of the ghats. These forests are worked under the Selection System and with the removal of mature and overmature trees and the consequent opening up of the canopy, the seedlings which had remained stagnant till then develop vigorously. In places where natural regeneration is deficient it is made up by introduction of the more valuable evergreen species under the shade of older trees.

10. In moist deciduous forests natural regeneration is very deficient and consequently we have to resort to artificial regeneration wherever the locality factors are favourable. Hence the method of regeneration is to clear-fell and plant up with teak, the rotation being 100 years. We have teak plantations dating from 1869 and the total area

of existing teak plantations in the State is about 13,000 acres. At present about 750 acres are being planted up with teak every year.

11. In the dry deciduous forests there is considerable mortality of sandal due to spike disease, and the natural regeneration is far from satisfactory. Sandal is being introduced in all suitable places to form propagation centres.

SILVICULTURAL RESEARCH

12. As the State is a small one there is no separate research branch and generally the advice of the Central Silviculturist, Dehra Dun, is obtained. We also benefit by the research work done in the adjoining States where similar problems are being dealt with. The Central Silviculturist has also got some of his experimental plots in the forests of the State. The most important problem confronting the State from research point of view is the control of spike. Experimental attempts have been made to start small scale plantations of *Acacia mollissima* (Wattle).

WORKING PLANS

13. Since the three types of forests mentioned above occur in distinct regions, three separate Working Plans have been prepared for them. The Working Plan of evergreen forests has been recently revised. The Working Plan for the teak forests (moist deciduous) is now under revision. The Working Plan for the sandalwood forests (dry deciduous) will be taken up for revision shortly.

PRODUCTION OF TIMBER

14. The estimated annual output from the evergreen forests is about 8 lacs of cubic feet but, for want of demand only about 2 lacs of cubic feet of timber are being extracted at present. The extraction is done through the agency of contractors to whom the annual coupes are leased out. The species generally in demand are *Calophyllum tomentosum*, *Palaquium ellipticum*, *Vateria indica*, *Dysoxylum malabaricum*, *Mesua ferrea* and *Hopea parviflora*.

15. The moist deciduous forests are the most important timber producing forests of the State and the annual output from these forests is about 7 lacs of cubic feet out of which

teak forms about 2 lacs of cubic feet. Exploitation of these forests is done departmentally and the timber is transported to Hunsur in Mysore State where it is sold periodically in auctions.

16. During the process of clear-felling in this region considerable quantity of unsaleable material is usually left in the area and burnt since it does not pay to transport it to the sale depot. In order to salvage as much of these rejections as possible, a saw-mill has been installed this year in the forest itself at Murkal. It is estimated that one lac of cubic feet of timber, which would otherwise be left in the forests as unsaleable material and burnt, will now be cut into sizes in the saw-mill and sold at the sale depot or supplied to the Central Public Works Department, Coorg, and other Government departments. A furniture factory and a wood seasoning plant are also being planned and will be put up shortly.

SOFTWOODS

17. The only softwood of any importance that is now sent to the market is *Bombax malabaricum*. All such trees which are found in the regeneration coupes and which have to be felled are felled and sold every year. The total quantity is about 12,000 to 15,000 cubic feet a year. In view of the fact that there is a great demand for softwoods for the match industry a scheme is being undertaken for planting 140 acres a year with *Ailanthus malabaricum* from next year.

FORESTRY AS AN AGENT IN SOIL CONSERVATION

18. Since Coorg is a very hilly country receiving a high rainfall the forests play a very important role in regulating the flow of streams and preventing soil erosion. Many important streams and rivers, the most important of them being Cauvery River, take their source in the hills of Coorg. Further, another river which flows west, called Barapole, is likely to be a river of great importance in future from the point of view of a Hydro-Electric Project under consideration of the Government. Hence the protection of the forests of this State is of vital importance not only to Coorg, but also to Mysore and Madras States wherein the waters of the rivers starting in Coorg are extensively used for irrigation and power.

WILDLIFE

19. The forests of Coorg exhibit a variety of fauna, especially the deciduous forests. Elephant, bison, *sambhur*, spotted deer, barking deer, tiger and panther are represented here. There is a proposal to form a game sanctuary in the State.

GENERAL

The annual revenue from the forests is about 40 lacs of rupees and the annual expenditure is about $12\frac{1}{2}$ lacs of rupees giving a net revenue of about $27\frac{1}{2}$ lacs of rupees. At present the Forest Deptt. contributes about fifty per cent. of the total revenue of the State.

APPENDIX VII

A SHORT NOTE ON DUNDHALLI COLLECTIVE FARMING CO-OPERATIVE SOCIETY, SHANIVARSANTHE

Conditions in Coorg are not generally favourable for the working of Collective Farming Co-operative Societies. But Dundhalli Collective Farming Co-operative Society has proved an exception.

Origin.—Dundhalli is a small Hamlet lying to the west of Shanivarsanthe Town at a distance of nearly 2 miles. This hamlet is composed of a band of very poor and illiterate peasants. There are 23 families in the village. Few persons hold small lands but are not self-supporting. Forced by circumstances, these helpless persons occupy themselves in agricultural labour in the season and in other types of labour in the non-season. Their income is hardly enough for their subsistence. Poverty and illiteracy were the bane against which they could not offer any resistance. In short, these were under an economy far below the subsistence level and lived the type of an almost exclusive life in this village.

Formation of a Co-operative Society for the benefit of these villagers made a turning point for their future career. These villagers thought of developing their economic conditions individually. They approached the State Government for grant of lands for Cardamom Cultivation. Cherishing the idea of opening small Cardamom plantations individually. As luck would have it for them, the Minister for Co-operation who knew their conditions very well being the representative of their Constituency rightly advised them to take to farming on co-operative basis and assured them of the grant of land for Collective Farming. The villagers being convinced of the potentialities of such a combined effort determined to pool their moral and manual resources and to start a Co-operative Farming Society. In accordance with their desire, a Co-operative Farming Society was registered in 1952, with 23 members and a share capital of Rs. 230.

Objects.—The object of the society are primarily

- (i) to promote the habit of thrift, self-help and self-reliance,
- (ii) amelioration of their distressed condition by pursuing collective farming,
- (iii) aims at the cultural and educational renaissance.

Working.—On registration of this Society, the State Government made a grant of 16 acres of land adjacent to this village on terms of lease. Immediately after the grant the members commenced clearing the jungle and preparation of ground for planting. Their first need was fencing the area and purchasing of working implements. For this, the Government gave a loan of Rs. 1,000 with which, fencing materials and working implements were purchased. Planting was done in stages year by year. In 1952 about $2\frac{1}{2}$ acres were brought under cultivation while during 1953 and 1954, the area of lands planted was $7\frac{1}{2}$ acres and 2 acres respectively. Thus, during these three years, the members have brought about 12 acres under Cardamom cultivation. It is proposed to bring the remaining 4 acres under Coffee cultivation. The significant part played by these pioneers in bringing the Farm to the present condition is that, they contributed voluntary labour at all stages, with considerable economic sacrifice without any difference of opinion among them at any time. So far, about 1,448 persons' labour is spent on the Farm. Besides this, the members have been keeping a regular watch over the estate both day and night by alternate arrangements. This again comes to a contribution of 1,278 days' labour. In terms of money, the value of labour computed at the rate of a rupee per day works out to Rs. 2,726.

Result.—This is just the year of maiden Crop which is valued at about Rs. 250. In a period of 3 years the entire area comes to yielding stage, and ultimately it is hoped that this small farm would be able to give an average gross return of Rs. 5,000 annually.

Community Development Work.—Besides farming, this organisation has also been tackling the problems of development of the Village.

Under the Community Projects Scheme, these villagers have opened a road leading to this village and village in-roads are being touched up every year.

They have put up a small village Community Hall of course, with thatched roofing. In this Community Hall the weekly assemblies and other village functions are held. On the side of spread of literacy, an adult literacy centre is being conducted. Most of the members are made literates. Not only these activities will be pursued but also other developmental activities will be taken up under the auspices of this society.

In addition to the frequent visits of the Officers of the several Government Departments, the Chief Commissioner and the Ministers were pleased to bless the villagers by visiting the farm and giving suitable instructions from time to time.

The members of the society are very grateful to the Chief Commissioner, the Chief Minister and the Home Minister of Coorg for the keen interest evinced by them in the development of this small estate and for the encouragement given from time to time.

Present Outlook.—On the whole, the village now presents a progressive outlook. This Co-operative enterprise has proved to be of great value. For, these helpless persons as they were, could not have thought of creating a collective asset as this, which can be easily valued at Rs. 12,000. Here is an exemplary instance to show what potentialities are there in rural parts and how an earnest effort to pool individual efforts on Co-operative basis, could produce such remarkable result. In fact, the members do not feel sorry for their personal sacrifices. On the other hand, they are happy and eagerly looking forward for the days of their emancipation.

APPENDIX VIII

BRIEF NOTE ON THE WORKING AND ACHIEVEMENTS OF NEHRU COLONY HARIJAN WELFARE CO-OPERATIVE SOCIETY LTD., COORG.

No. 433 Nehru Colony Harijan Welfare Co-operative Society Ltd., was organised and started on the 15th April 1951.

The Objects.—To promote self help, mutual aid and to inculcate the habit of thrift, joint farming etc., among members.

To raise funds from members and non-members and advance loans to the members.

To supply the domestic and other requisites of members.

To act as an agent to sell the produce of the members for better price.

To impart knowledge by maintaining library, adult school, etc.

To carry out any other business in conformity with the principles of Co-operation.

The state of affairs of the society as on the 30th June 1954.—Membership:—

	A. Class	32	
	B. Class	17	(ladies)
	TOTAL	49	
Working capital			Rs.
Share capital			3,275
Thrift deposits			318
Reserve Fund			184
Loans due to State Co-operative Bank			86
Government Taccavi loan			1,622
Govt. contribution for doors and windows			980
Loans due by members on personal security			530
Amount spent for Co-operative farming			1,310
			1,114

This free grant of land consists of ten acres for House Building, fifteen acres for Co-operative Joint Farming.

Twenty-five dwelling houses have been constructed which consists of forty families. There are 72 members (male & female) having their residence in this colony. Doors and windows worth Rs. 500 were provided by the State Government. Collective Farming has been taken up in the area granted for this purpose. Three acres have been planted with Banannas. The whole area has been fenced with barbed wires. The Night School for educating the adults is being conducted for the last one year from 4th December 1953, with 15 to 20 members learning. A thatched shed which was being used so far as a Community Hall and the Office of the Co-operative Society has now been removed. To have a new building they have jointly prepared one thousand sun burnt bricks. It is proposed to put up a pucca building there immediately with the help of the State Government.

Under the Labour Welfare Scheme housing facilities are given. Tiles for five houses have already arrived so far. A well to provide drinking water is sunk in the centre of the colony. Further financial help from the State Government for construction of a Co-operative building in view of starting a Reading Room and also for the development of Cottage Industries, such as Bee-Keeping, Poultry, Spinning, etc., is very earnestly prayed for towards the alround development of the members of this Co-operative Colony.

APPENDIX IX CROP COMPETITION SCHEME

Statement containing yields of Paddy & Jowar obtained by the cultivators in the Dharwar district

S. No.	Name of the Cultivator	Village	Taluka	*	Yield per acre	
					Grain	Fodder
					B.Mds.	Srs. Lbs.
PADDY (DRILLED)						
1.	Shri B. B. Motal	.	.	.	.	.
2.	Shri S. M. Siddapur	.	.	.	.	.
3.	Shri B. V. Doddagoudar	.	.	.	.	.
					95—15	27,500
					68—07	13,640
					62—13	9,360
PADDY TRANSPLANTED (JAPANESE METHOD)						
1.	Shri A. C. Dasohamath	.	.	.	.	.
2.	Shri D. R. Tambakad	.	.	.	.	.
3.	Shri U. S. Pathan	.	.	.	.	.
4.	Shri S. S. Aradrimath	.	.	.	.	.
5.	Shri G. N. Desai	.	.	.	.	.
6.	Shri G. M. Tatti	.	.	.	.	.
					81—00	23,000
					80—20	22,702
					79—10	22,682
					79—04	22,652
					42—00	60—00 (approx.)

S. No.	Name of the Cultivator	Village	Taluka	Yield per acre	
				Grain	Fodder
				B.Mds. Srs.	Lbs.
JOWAR DIBBLED					
1.	Shri G. R. Kulkarni	Haveri	Haveri	41-16	21,120
2.	Shri S. M. Suri	Haveri	Haveri	39-10	14,380
3.	Shri S. D. Kolekar	Honmaradi	Haveri	53-17	25,920
4.	Shri M. C. Navali	Ijarlakamapur	Haveri	45-18	18,000
5.	Shri S. N. Anandanigoudar	Ijarlakamapur	Haveri	34-06	15,500
6.	Shri S. B. Mallanagoudar	Aladakatti	Haveri	36-34	14,560
7.	Shri C. B. Kabbur	Devihosur	Haveri	45-27	14,760
8.	Shri P. D. Hogisoppina	Devihosur	Haveri	32-39	10,080
9.	Shri S. K. Basegani	Agadi	Haveri	54-00	30,720
10.	Shri K. V. Yeri	Kariagi	Haveri	30-25	12,600
11.	Shri B. T. Amati	Kabbur	Haveri	43-26	16,800
12.	Shri P. T. Honnatti	Kabbur	Haveri	42-30	16,000
13.	Shri D. L. Sadar	Kerimattihalli	Haveri	24-00	9,600
14.	Shri S. R. Wali	Kerimattihalli	Haveri	37-25	15,400
15.	Shri T. P. Hosalli	Kerimattihalli	Haveri	46-17	16,800
16.	Shri B. T. Kulkarni	Hosur	Haveri	42-08	13,200
17.	Shri M. D. Dhulehali	Chalageri	Ranebennur	24-19	9,620
18.	Shri N. B. Lukkanagoudar	Chalageri	Ranebennur	23-17	8,640
19.	Shri B. Kannammanavar	Chalageri	Ranebennur	22-18	8,000
20.	Shri K. G. Salimath	Karur	Ranebennur	35-05	12,926
21.	Shri N. S. Agadi	Nagenalli	Ranebennur	38-22	14,140
22.	Shri G. Kengali	Itagi	Ranebennur	29-11	10,800
23.	Shri B. C. Mallanagoudar	Makanur	Ranebennur	36-08	13,327
24.	Shri C. B. Patil	Makanur	Ranebennur	39-21	14,580
25.	Shri H. Garagapatti	Taredahalli	Ranebennur	33-09	11,196
26.	Shri D. Patil	Taredahalli	Byadgi	37-25	14,000

APPENDIX X

A BRIEF REPORT ON THE DEVELOPMENTAL ACTIVITIES OF THE FOREST DEPARTMENT, COORG

In the last three years the forest administration of Coorg has been completely reorganised, with a view to make it produce more timber for the present and for the future, and also to cut down wastes both in exploitation as well as utilisation. Thus the production of deciduous hardwoods such as Teak, Bijasal, Mathi, etc., which was about 2½ lakhs of cubic feet per year three years ago, has been stepped up to more than 6 lakhs cubic feet per year now. The planting programme has also been enlarged with a view to improve these forests and increase its future value. Thus as against about 400 acres that used to be planted with Teak formerly, now about 750 to 800 acres are being planted with Teak every year, converting areas suitable for Teak but where the stocking of Teak was poor, into new well stocked Teak plantations. The importance of this can easily be appreciated when it is realised that the degraded type of forests we have taken on hand for conversion is worth only about Rs. 2,000 to Rs. 3,000 per acre, whereas when converted into Teak plantations the value goes up to about Rs. 30,000 to Rs. 35,000 per acre.

2. Financially, the Coorg forests are now working at a very high degree of efficiency. The gross revenue obtained by the recent reorganisation is about Rs. 40 lakhs a year, and the expenditure is about Rs. 13 lakhs to Rs. 14 lakhs a year, leaving a net revenue of about Rs. 26 to Rs. 27 lakhs a year. Since the total area of forests in Coorg is about 500 square miles, this means, taking the entire area of the forests of Coorg, both productive and non-productive into consideration, a net revenue of about Rs. 5,400 is realised per square mile. If we take the productive areas alone into consideration eliminating the 300 square miles of forests which we have to treat as climatic and protective forests, the net revenue is greater and works to about Rs. 13,500 per square mile of forests.

3. The basic problem of Coorg Forest is one of improving its long term productivity, and meanwhile utilising all the timber that is not worth retaining further without letting them go to waste.

4. The Forests of Coorg can be divided into three types. The State of Coorg is located on the eastern slopes of the Western Ghats, and as such it gets a very varied rainfall, varying from about 30 inches in some places to more than 250 inches on the Western Ghats. The slopes of Western Ghats,—which receive the highest rainfall are clothed with dense vegetation of the tropical evergreen rainfall type. The forests are impressive and magnificent. But one has to proceed with extreme caution in working these evergreen forests, as we cannot afford to adversely affect its climatic and protective character. Only selection fellings are here possible and we can remove only the mature and over-mature trees, and that too with great care and caution. This area produces cardamom as a minor produce. The timber here is of the evergreen species. This area has been thoroughly examined, and it is possible for us to produce about 8 lakhs cubic feet of timber per year from this region without adversely affecting this area. But to do so, it will become necessary to install a creosoted plant, as then only, we will be able to produce creosoted sleepers in large quantities for railways and posts for electric transmission. Quite a lot of strong timber grows in these forests, but they are not durable. The creosoting plant will also facilitate our producing more timber even for house building purposes from this zone. Hence from the national point of view, the development of these evergreen forests is necessary, but we have to wait until a creosoting plant is installed, which will cost us about Rs. 7 lakhs. The importance of this problem can be appreciated when it is remembered our national annual consumption of timber is about 21 lakhs of tons and our annual overall production all over the Indian Union is only 18 lakhs of tons and hence every bit will count to reduce imports.

5. This region can also be made a source of supply of raw materials for starting one or two hard-board factories. The matter is being examined, but our financial resources will not be adequate for any of such schemes, and hence these have to be postponed for the present. Similarly, paper industry is possible in Coorg, as we have plenty of bamboos, which now grow in abundance here, and for which

there is no demand, but again there is the question of capital. It is unfortunate that we are not in a position to start these schemes owing to financial reasons, since these are of national importance and will increase our overall national productivity and reduce our dependence on imports.

6. Unlike the evergreen region, the deciduous areas of 50 to 150 inches rainfall, lends itself for immediate expansion of our activities, for two reasons. The trees that grow in this zone are very valuable, as they consist of species such as Teak and Bijasal and Mathi, etc. Secondly no large capital is required for organising this area. Hence three years ago we started a complete reorganisation in the working of this area. In reorganising this area, our first problem was to reduce the cost of extraction. This we did by not merely depending on elephant power as we used to do before, but by reducing the leads for our elephants in dragging by forming a series of lorry tracks within the coupes with the help of ordinary tractors with some cheap attachments. Thus we are now using the same elephant power which we had when we extracted about 2½ lakhs cubic feet of timber, to extract more than 6 lakhs of cubic feet of timber, by spending about Rs. 25,000 on tractors and the incidental charges to maintain the same. This saved us more than Rs. 2 lakhs in the upkeep of elephants, because, if we had worked on the old method, our elephant power would have had to be increased more than twice, which, in addition to the capital outlay of about Rs. 8 lakhs on new elephants, would have involved us in a recurring expenditure of about Rs. 3 lakhs per year. All this was got over by a simple device of forming cheap tracks for lorries into the coupes themselves with the help of tractors with earth levellers and subsoilers. This was found to be very economical in Coorg and may be of interest for other forest administrations also, where similar problems exist.

7. In the matter of exploitation it was found the local practice was to log by axes. By introducing cross-cut saws which involved only about Rs. 5,000 of initial expenditure we were able to avoid a waste of about 60,000 to 70,000 cubic feet of timber a year which is worth at least about Rs. 3 lakhs per year.

8. Thirdly, we found a large quantity of timber which was highly defective and as such could not bear the cost

of transport and hence could not be sold. Hence they were being burnt in the coupes. To avoid this colossal waste of timber we have put up a saw mill in the forest itself at a cost of Rs. 1,30,000. This saw mill aims at converting all the unsaleable material left in the coupes into saleable timber, and even though this timber owing to its defects has to be sold at 3 to 4 rupees per cubic foot after conversion, it still means a profit to the Government and also saving of waste from the national point of view.

9. The drier type of forests under 50 inches of rainfall produces sandalwood. Coorg produces about 100 tons of sandalwood per year which is worth about Rs. 3 lakhs. The forest department has got in view the idea of starting a sandalwood oil factory on the same lines as Mysore.

10. As a long term policy, our conversion of degraded forests into Teak forests is of great importance. The areas we have got on hand are suitable for growing high grade Teak, as the Teak of Coorg is close-grained and has got a good reputation in the market. It also grows to large sizes, and in our forests, we have even now trees of 20 feet in girth and more. But before 1910, the permit system was in force here under which persons can remove whatever they wanted, and since in those days transport was difficult and only the best classes of timber were saleable this resulted in a progressive degradation of the forests by the removal of most of the valuable timber. So we have now on hand large areas of this degraded type of forests. We are now converting at the rate of about 750 acres per year these degraded forests into Teak forests. The 7 lakh cubic feet of timber we get is got as a by-produce in this conversion process. As our expenditure on planting Teak is only about Rs. 55 per acre this process itself does not cost the State anything, but gives a handsome return. Since an acre of well planted Teak will give Rs. 35,000 per year as against Rs. 2,000 to Rs. 3,000 per acre from miscellaneous forests, the ultimate revenue of the Coorg Forest Department will go to about Rs. 2 crores at the end of the first rotation by the reorganisation we have introduced now. As stated above even the evergreen forests will, if we proceed with our development programme as suggested above and develop forest industries, give us even immediately some further revenue over and above the 40 lakhs we are getting now.

11. To sum up, in the last three years we have reorganised our forests and more than doubled the production of timber and increased the revenue of our department appreciably. The net revenue is about Rs. 5,000 per square mile of the whole area is taken into consideration, and is about Rs. 13,000 per square mile if we exclude the climatic and protective forests. The timber production of deciduous timbers alone like Teak, Bijasal, Mathi, Venteak, etc., is more than 6 lakhs of cubic feet per year and in addition there is a potential possibility of about 8 lakhs of cubic feet of evergreen timbers and also large scale production of sleepers and electric transmission posts, etc., if we could instal a creosoting plant. There is also the possibility of starting a paper mill and a hardboard factory. Under these circumstances, even though our forest area is small, our potentialities are very great. Even now our production of timber and total revenue per square mile of forest, and planting operations, can compare favourably with some of the "A" class States.

APPENDIX XI

NOTE ON SCHEDULED TRIBES IN COORG *Population.—*

Men	.	:	:	:	:	:	11,024
Women	.	:	:	:	:	:	10,060
TOTAL							<hr/> 21,084

The following constitute the Tribals in Coorg as per Schedule:—

1. Koramas.
2. Kudiyas.
3. Kurubas.
4. Marathas.
5. Medas.
6. Yeravas.

There are three members belonging to the Scheduled Tribes in the State Legislative Assembly which consists of 24 members.

The following amelioration work is proposed to be taken up in the order of priority:—

1. Intensive propaganda and Social Service work.
2. Conferences, Rallies, Meets, Exhibitions, etc.
3. Provision of lands and Agricultural facilities.
4. Construction of houses and colonisation.
5. Provision of Water facilities.
6. Encouragement of Cottage Industry.
7. Health Services.
8. Education of Children and Education of Adults (Social Education).
9. Sanitation.
10. Recreation.

A sum of Rs. 1,18,250 is allotted for this year for taking up the following works:—

	Rs.
1. Housing and colonisation	41,000
2. Agriculture (Cattle, Implements, Seeds, etc.)	10,000
3. Drinking water facilities	6,000
4. Cottage Industry	12,250
5. Supply of Honey Extractor, etc.	2,000
6. Education (Buildings, etc.)	10,000
7. Supply of Clothing Books, Milk, etc.	25,000
8. Propaganda, etc.	2,000
9. Pay of supervising staff	10,000
TOTAL	1,18,250

Of this, Rs. 1,06,250 is from the Centre. Apart from paying intensive attention on the above matters, attention is also being given on Health and Sanitation, Education, Cottage industry, Provision of Drinking Water Facilities by the various Departments of the Government in the course of their general work connected with the improvement of the State as a whole.

This year, apart from provision of lands, in cases where there is a genuine request, 72 houses at Rs. 350 each and 2 colonies at a cost of Rs. 16,000 is proposed to be put up in several parts of the State on an experimental basis. A scheme for 18 lakhs for the 2nd Five Year Plan has been prepared and submitted to the Central Government for sanction. For each house about Rs. 350 will be spent act of which Government will supply tiles, two doors and two windows and some timber and the owner has to construct the building with mud walls with an additional sum of cost Rs. 50.

Propaganda meetings, health inspections and advice, Social Service Work, etc., meant to prepare the Tribals for a better life will also be undertaken. Apart from visits to their dwelling places by the Labour Welfare Staff, Leaders, Social Workers, etc., it is proposed to organise 10 Tribal Meets before the close of this Official Year, in a planned way. These meets are intended to bring the Tribals together and offer them opportunities to mix up with other advanced communities and—enthuse them for a better life. These meets will also afford people connected with their Welfare Work to hold discussions and get to know the correct way of procedure in work. Their problems will be heard and schemes will be prepared to suit them. Further,

the schemes already on hand will be explained to them and they will be given advice to get rid of their crude habits and improve themselves both on the Social and Economic aspects of life. In a nutshell, those 'MEETS' will mean a preparatory ground for the improvement of the Tribals on all aspects of their life.

Work undertaken till the end of 1954.—Tribals Welfare Work has been taken up on special basis since January, 1954, and a beginning has been made in the following items of work:—

1. Propaganda, Conference, Rallies, and Exhibitions.
2. Provision of lands and houses.
3. Sinking of Wells and Provision of Irrigation Facilities.
4. Social Service Work.
5. Adult Education.
6. Recreation facilities through Bhajans, Folk Dances and Songs and Film Shows, Encouragement of Tribal Pastimes, etc.

About Rs. 30,000 is being spent towards the Education of the Tribal Children, alone. Their children get free clothing, midday meal, free books, freeship and scholarships. One Hospital is run by the Forest Department for the benefit of the Tribals. Apart from this, visits by the Staff of the Public Health Department to some of the colonies on an intensive scale is also arranged.

With a view to encourage Cottage Industry, raw materials worth about Rs. 5,000 (canes) were supplied to the Tribes and they were helped to a certain extent in marketing their furnished goods also. This requires to be intensified on a planned basis.

240 Bee Hive Boxes have been sanctioned for free distribution amongst the Tribals and the same will be distributed from the 15th January, 1955, onwards. Vegetable seeds will also be distributed to certain extent.

Untouchability is not at all a serious problem in Coorg and with further propaganda and education what little that remains can easily be eradicated.

P. G. MUTHAPA,
Labour Welfare Officer, Coorg.

APPENDIX XII

Speech of Dr. Panjabrao Deshmukh, Minister for Agriculture, Government of India at the Inauguration of the joint session of the All India Veterinary Association and Madras State Veterinary Association at Madras on 18th January 1955.

First of all, I must thank you for asking me to inaugurate this joint session of the All India Veterinary Conference and the Madras State Veterinary Conference. I am glad that it was possible for me to accept your kind invitation and to be with you today.

2. Associations like the All India Veterinary Association are a vital need for the healthy growth of every profession. Like the string of a rosary, these Associations serve to link together their members wherever they are placed, and the periodical conferences provide a common platform for mutual exchange of views. In these, and in many other ways, such professional associations can play an important part in maintaining the professions alert and trim so as to be of the best possible service to themselves as well as to the nation. But this is by no means an easy ideal to attain. This can happen only if the members keep a due sense of realism and sobriety.

3. The modern organized veterinary profession in India is a few decades old, and it has had, it seems, to face many handicaps and impediments. The formation of a Veterinary Association, though on a provincial scale then, was conceived and achieved as long ago as 1912 in the Punjab and Uttar Pradesh. This may come as a pleasant revelation to those who are not aware of the history of the development of these associations; and we must praise those pioneer enthusiasts for whatever they were able to achieve over 40 years ago. Likewise, we must also admire the fortitude of that small band of workers who, working against many odds, succeeded some 30 years ago in organizing an All-India Veterinary Association. These pioneers and all those others who have laboured hard not only in

keeping this Association alive but also in making it a representative body of the profession deserve a reference and a tribute for what they left behind.

4. The need for setting up a Central Organization with legislative backing, for controlling and regulating Veterinary practice, for effecting liaison between the Government and the profession, and for taking up other cognate functions more or less on the lines of similar statutory organizations existing for the allied professions of medicine and dentistry, had been repeatedly urged by representative bodies of the Veterinary profession as well as the advisory bodies of the Government of India. As you are aware, this matter was discussed in December 1951 at the joint meeting of the All India Veterinary Association and the Bombay Veterinary Medical Association. The then Union Minister for Food and Agriculture who presided over that meeting had appointed a Steering Committee to go into the question of establishing a National Veterinary Council for the country. The Steering Committee, composed of official as well as non-official representatives of the Veterinary profession, met at Bangalore and made certain recommendations. These recommendations have been accepted by the Government and as a first step towards the formation of a National Veterinary Council, an interim Indian Veterinary Council has recently been constituted. This interim Council is composed of members representing the Veterinary Departments and the Veterinary Associations of the constituent States of the Indian Union, besides a few members nominated by the Central Government. I understand this Council is likely to meet in the near future, and I hope all its members will attend that meeting and chalk out a programme for an efficient execution of the functions and objectives of that Council. One important function of the interim Council would be to work out a detailed scheme for the formation of Veterinary Councils in the States as well as at the Centre on a permanent footing and as far as possible with a statutory authority. The All India Veterinary Association may naturally be of considerable help and service in this respect.

5. Veterinary science and animal husbandry in India have made considerable strides in the past few decades and some of at least of the achievements have been remarkable indeed. But no progressive organization can

rest content on past glories. The development of livestock is a slow and continuous process, but at the same time of vital interest to the country. We in this country still have such a tremendous ground to cover that the task before our Veterinarians is of a gigantic magnitude. India is said to possess nearly one-quarter of the entire cattle population of the world. In spite of the fact that we have already been able to develop a few good breeds, the majority of our cattle continue to be practically as non-descript as ever, without appreciable improvement in their performance. Moreover, the improved breeds are not available in sufficient numbers. Some of our best breeds, like Sahiwal, Sindhi and Tharparkar have been left in Pakistan and we have to make the best of the small numbers which we possess. The picture with regard to other species of domestic animals is no better. Nevertheless, the total annual contribution of livestock to the economy of the nation even at their present state has been estimated at more than 1,000 crores of rupees. The Central and the State Governments are alive to the need of rapid improvement of animal husbandry in the country and they are doing their best as funds and other conditions permit. The real burden of this gigantic task, however, rests on our workers, who have to discharge efficiently the duties entrusted to them. We are short of bullock power, milk and milk products, meat, fish and eggs and the average quality of our wool is inferior. We have only one breeding bull against our requirement of 250. Roughly not less than 10 per cent. of our cattle are wholly unproductive or unserviceable, over half of which are moving carcasses for which we profess profound respect and devotion. What should be a matter of utter shame to any sensible human being provides the fodder for a political capital to beat us within season and out of season. It is a strange interpretation of the doctrine of *Ahimsa* to ask us to prolong the agonies of these helpless, dumb creatures for whom moving appeals are made but very little actually done. Much of what is collected in the name of the cow often goes to feed the sympathiser rather than the sympathised. The total milk production in the country has to be increased very greatly to meet the human nutrition requirements. Our nutrition experts have prescribed a target of one egg per adult human unit a day, but as I pointed out only the other day the total output of eggs in the country is so low at present that it allows only 4 eggs per adult unit in a whole year. The net result of the poor quality of our ani-

mals is that we have to maintain them in much larger numbers than we would actually require if their quality could be improved. This means much greater pressure on land than desired. The feeds and fodders available in the country are hardly enough which we have got to feed. We have no doubt made considerable progress in the control of diseases, but a large number of animals still die annually as a result of disease and most of these deaths can be prevented by a proper application of the vaccines and other measures which have been developed as a result of the researches conducted in this country and abroad.

6. In the past, disease has been the chief obstacle in the way of progress in animal husbandry, since it often carried away the best of the progeny produced after years of hard labour. Among the many contagious diseases affecting livestock, rinderpest has always been cattle enemy No. 1. Thanks to the intensive researches conducted at the Indian Veterinary Research Institute, we are now in possession of very efficacious vaccines for immunizing our cattle against that fell disease. These vaccines have already been tried on large scale in almost all the States with very good results. I was very happy to learn that the State of Madras has already been freed from the ravages of rinderpest as a result of intensive mass vaccination campaigns. The experience acquired in Madras and certain other States impelled us not to lose time to undertake a complete eradication of rinderpest from the country. After a somewhat prolonged scrutiny and discussion of the proposed eradication programme, the Central Government have, at an estimated cost of Rs. 10 lakhs, sanctioned a pilot scheme for eradicating rinderpest from the southern peninsular States. This scheme has already come into operation, and the objective is expected to be attained during the term of the First Five Year Plan. This pilot project should provide the requisite knowledge and experience necessary for taking up during the second Five Year Plan period the eradication of rinderpest from the remaining parts of the country. I know it is a huge task, the like of which has probably not been undertaken before in this country in any field of human endeavour. But imagine the great service it would be to our national prosperity! With the co-operation of all concerned, whether in the States or at the Centre, I am confident we shall succeed in our mission.

7. While rinderpest has attracted our major attention, we cannot adopt an attitude of complacency towards the numerous bacterial, parasitic and miscellaneous other diseases which livestock flesh is heir to. Much progress in alleviating the sufferings of our animals owing to such diseases and saving the economic loss caused thereby has been achieved. We have, however, to greatly intensify our efforts for controlling the diseases of livestock through a wide application of the methods already known and through further intensification and enlargement of our veterinary research organizations.

8. The Planning Commission is rightly inclined to place greater emphasis on animal husbandry in the second Five Year Plan, and the Central Government are considering a number of proposals for inclusion in the second Five Year Plan. I would like to take this opportunity and tell you something about the more outstanding of our proposals:

(1) The Key Village scheme will be greatly expanded and 600 more Key Village Centres will be established. In addition, 100 artificial insemination centres will be set up in towns. A subsidy of Rs. 10 per month per calf will be given for selected male and female calves in Key Villages. The object of this subsidy is to induce the cattle owners to properly rear the improved progeny produced by breeding with selected bulls. Arrangements will simultaneously be made for development of grazing lands and for production and preservation of fodder.

(2) One hundred more Gosadans will be established for segregating old, unproductive and infirm cattle.

(3) The resources of 500 goshalas and pinjrapoles will be utilized fully not only to improve the institutions themselves but also to develop the cattlewealth of the country, and improve the milk supply position. There are nearly 3,000 Goshalas spread throughout the country which maintain over 6 lakhs of cattle at an estimated annual expenditure of nearly 7 crores of rupees. Most of these institutions have good resources in the shape of land, building etc., and they provide a great potential for breeding cattle and increasing milk production. When properly organized, these institutions should make available an increased supply of milk to the towns and also effectively serve as efficient cattle breeding centres.

(4) The grasses available in the forest areas will be collected and transported to the nearest rail head where fodder banks will be established. A constant stock of about 20 lakh maunds of hay will be maintained with a view to meeting emergent demands in fodder famine areas.

(5) There are nearly 38 million sheep in the Indian Union and they produce annually roughly 76 million pounds of wool. Nearly 20 million pounds of raw wool is imported every year from Commonwealth countries for the production of superior quality apparel. The results of previous attempts at improving our sheep and wool have been utilized and now for the development of sheep and wool the country has been divided into three regions, viz., the Temperate Himalayan Region, the Dry Northern and Western Region, and the Southern Deccan Region. Definite breeding policies have been laid down for these regions. For instance, in the Temperate Himalayan Region the policy to be followed is the cross-breeding of the indigenous sheep with Rambouillet or similar imported rams. For the dry North-Western Region it is proposed to concentrate on a planned programme of selective breeding of the indigenous types with a view to producing an ideal carpet type wool. In the Deccan Region the local sheep will be improved by selective breeding and also graded by cross-breeding with imported breeds. In each of these regions a number of development blocks having ram-rearing sub-centres will be established.

(6) Poultry forms an important item of our national wealth. Our past experience of poultry development has taught us that the best policy for quick development of our poultry would be to grade up the local flocks with cocks of improved breeds like Rhode Island Red, White Leghorn etc. An All India scheme of poultry development has been prepared for inclusion in the second Five Year Plan. It is proposed to establish 150 poultry development centres all over the country. Day-old chicks will be imported from abroad, reared at well-organized farms up to the age of 5 months or so, and then distributed to these centres from where they will finally be sold to the villagers at nominal price in trios consisting of one male and two females for intensive breeding in the areas. All indigenous male stock of this intensive breeding area will be removed. The cockerels from the farms will be distributed for up-grading the indigenous flocks of the area surrounding

the intensive breeding area. The Government of India have already sanctioned a pilot scheme for operation during the remaining term of the first Five Year plan period. Under this pilot plan it is proposed to establish 15 poultry development centres and to utilize the existing resources available in the country for the supply of the basic breeding material. It is hoped that these new plans will go a long way in developing the poultry industry in the country.

(6) Temporary infertility or permanent sterility in both males and females is a great handicap to regular breeding and causes much economic loss. The Indian Council of Agricultural Research realized the importance of tackling such breeding troubles and the Council has helped six of the State Veterinary Colleges in creating special chairs in Animal Gynaecology and Obstetrics not only for imparting suitable training in these subjects but also for conducting researches in sterility with a view to developing efficacious preventive and curative methods. The officers appointed have already been sent to Stockholm for specialized advanced training.

(7) Every professional service has to be manned efficiently in order that it may be of real service to the nation. The task of producing the requisite personnel has to be discharged by our veterinary colleges. Special development schemes like the Key Village Scheme, National Extension Service, Rinderpest Eradication Plan, etc. have greatly increased our veterinary personnel requirements. The existing colleges are unable to cope with this task. A double-shift arrangement for admitting some 114 extra students has already been made in the two colleges at Hissar and Hyderabad. All the State Veterinary Colleges have been asked to expand their admission facilities to the utmost. The Government is also examining the needs for opening a few more veterinary colleges in the country. All these measures, however, are of a more or less long term nature, whereas the number of veterinary Graduates required is mounting up day by day. As an emergency measure, therefore, it has been decided to introduce temporarily a new cadre, Intermediate between the Stockmen and Veterinary Surgeons, after training for a period of two years or so for which arrangements are being made with the various veterinary colleges. I must admit that the decision to create this new cadre has been taken very reluctantly and purely as an emergency

measure to meet the serious situation arising out of the shortage of veterinary Surgeons in the country. The officers of this cadre will not function as qualified veterinary surgeons, but they will be entrusted with day-to-day task of elementary nature under the direct supervision of properly qualified veterinarians. This cadre will be gradually replaced by Veterinary Graduates as and when they start becoming available in required numbers.

9. As I have said before, we have to shoulder very heavy responsibilities so that we may efficiently discharge the service which our nation expects from us. I trust we shall not fail our country and I hope we shall have the enthusiastic cooperation of all concerned in raising the status of our livestock wealth and thereby improving the prosperity of our country.

APPENDIX XIII

BRIEF NOTE ON THE MAIN RECOMMENDATIONS OF CENTRAL TOBACCO RESEARCH INSTITUTE, RAJAHMUNDRY.

Central Tobacco Research Institute, Rajahmundry.—

This Institute was established in 1947 for improvement of cigarette and *Lanka* tobaccos and fundamental research on all tobaccos cultivated in India. Some of the important achievements of this Institute are mentioned below:

1. *Introduction of variety Chatham.*—The Institute has recently introduced a new flue-cured variety, Chatham, which yields about 15 per cent. more than the prevailing variety, Harrison Special grown throughout the area, and also gives a higher percentage (10 per cent.) of bright grades.

2. *Manurial schedule.*—The black soils in which Virginia tobacco is grown are very fertile and the crop is grown without any irrigation. It has been found that the optimum requirement of nitrogen is 20 lbs. per acre only and in some favourable seasons and in some good soils even this small dose is not required. Growers have, however, been applying complete N.P.K. fertiliser mixtures as recommended by fertiliser firms. Investigations have not shown any improvements due to the application of phosphates and potash and it is felt that the growers are unnecessarily spending rupees 25 lakhs a year on phosphates and potash by applying complete fertiliser mixtures. Accordingly the Institute is recommending a fertiliser dose of only 20 lbs. N per acre.

3. *Topping.*—Cigarette tobacco is not at all topped in this area as topping is supposed to deteriorate the quality of leaf. It has been however found at the Institute that the judicious topping, particularly in average crops and in lighter soils, gives better body to the leaf without deteriorating the quality in other respects. This results in 20 per cent. higher yield.

4. *Control of suckers.*—Suckering which should follow topping increases the cost of cultivation and without sucker-

ing the full effect of topping is not obtained. The application of a drop of oil in the axils scorches the suckers so much that they cannot grow further. This is a very cheap and simple method and the only precaution that should be taken is to see that the drop of oil smears the bud only and does not trickle down the stalk. This method would save an expenditure of Rs. 8 approximately per acre presuming that two suckers are resorted to.

5. *Irrigation*.—Virginia tobacco is never irrigated on the assumption that irrigation will tend to make the leaf dark green with the attendant difficulties of curing. Here again, it was found that an early irrigation before the end of December will not be so harmful to the crop as to deteriorate the quality. Good increase (over 20 per cent.) in yield have been obtained through irrigation when it is done before the end of December in comparatively less heavy soils.

6. *Control of 'damping off'*.—One of the major problems of tobacco cultivation in this area is difficulty of raising seedlings in the black soils in which the tobacco is grown, so much so that nurseries are raised only in pockets of light soils and transported over long distances. This Institute, has however, evolved a schedule of prophylactic spraying which makes it possible to maintain nurseries on black soils with fair amount of success. This results in saving in the cost of transport of seedlings from long distances and availability of fresh seedlings for transplanting, which is advantageous.

7. *Curing schedule*.—The system of curing adopted by cultivators is wasteful as regards coal consumption and decreases also the percentage of bright grades. A better schedule of curing which involves a different manipulation of the ventilators has been evolved and this has reduced the cost of coal consumption by Rs. 19 per acre and has increased the bright grades by 6 per cent. with a resultant extra return of about Rs. 25 per acre.

8. A number of other minor recommendations on time of transplanting, spacing, control of ground beetle and eradication of *Orobanche* have resulted from the work of the Institute since its inception.

APPENDIX XIII-A

SPEECH OF DR. PANJABRAO DESHMUKH, UNION MINISTER OF AGRICULTURE ON THE OCCASION OF LAYING THE FOUNDATION STONE OF THE CENTRAL TOBACCO RESEARCH INSTITUTE, RAJAHMUNDY ON THE 20TH JANUARY 1955.

It gives me great pleasure to be here today on the occasion of laying the foundation stone of the Central Tobacco Research Institute in this very ancient city of Rajahmundry, situated on the bank of the holy Godavari. The city has been the centre of Andhra culture for many generations, and it is in the fitness of things that it should also be the centre of research of the principal cash crop of the State.

2. It is now recognised even by the man in the street that the progress of a country depends greatly on sound system of scientific investigations in the solution of the problems confronting it. This is particularly true in agriculture.

3. India is primarily an agricultural country and one of the principal tobacco producing countries in the world, being third after the U.S.A. and China. Tobacco is a cash crop of very great importance to the Government from the point of view of revenue and to the trader and cultivator as a good source of income. In some parts it is the cultivators' leading cash crop and their mainstay.

4. It earned about 123 million rupees in foreign currencies in 1953-54 for the nation forming the ninth important item of India's export merchandise and contributed 327 million rupees as excise revenue, besides those from cess, import duty and sales tax. It also provides employment for hundreds of thousands of workers in its industry.

5. With the successful functioning of the Indian Central Cotton Committee and the invaluable benefits derived therefrom in the development of the cotton industry in India, the establishment of similar all India commodity Committees for the production and improvement of parti-

cular crops was recommended. The Government of India has, therefore, since constituted Commodity Committees for Jute, Sugarcane, Tobacco, Oilseeds, Arecanut, Coconut and Lac.

6. With the imposition of a Central excise duty on tobacco in 1943, the Government of India set apart a sum of rupees ten lakhs per annum for the improvement in the production, development and marketing of this important cash crop. Pending formation of the Indian Central Tobacco Committee in November 1945, this amount was placed at the disposal of the Indian Council of Agricultural Research, which administered it till then. The Committee draws up plans for comprehensive tobacco research, development and marketing on an all India basis. It is a body representative of all the interests concerned with tobacco, viz., the grower, the trader, the co-operator, the nominees of the State Departments of Agriculture and concerned Central Ministries, which ensures the requisite co-ordination in the Committee's work. Further to give an effective voice to the grower, who matters most in the field of agricultural research and marketing, the Government of India are increasing the representation to the growers on the Committee. The active association on a common forum, of all such important interests with the development of the commodity has amply justified the creation of such Committees for each commodity.

7. The main functions of the Commodity Committees comprise in the advancement in (a) agricultural, (b) technological, and (c) economical development of the commodity concerned. The advantages of a Commodity Committee lie in the fact that the Committee can devote its whole-hearted attention to the different agricultural and industrial problems of the commodity concerning the growers, traders, industrialists and the consumers in the country.

8. Of the various States producing tobacco, Andhra occupies the pride of place since it accounts for almost the entire production of Virginia tobacco in India, which largely enters international markets. This State produced in 1953-54, 217 million lbs. out of 571 million lbs. of total Indian production. It is, therefore, in the fitness of things that this State should have the Central Tobacco Research Institute located within its borders at Rajahmundry and a

Research station at Guntur. The headquarters of the Tobacco Grading Inspectorate is also located in Andhra. Science has helped man in almost all his undertakings. The part played by it in modern agriculture is now too well known to merit any special mention.

9. In the second Five-Year Plan, it is proposed to strengthen and equip all the Tobacco Research Stations, particularly this Institute, so that they could also serve as extension and training centres in tobacco production. It will be no exaggeration to mention here that this Central Research Institute will be one of the biggest research centres on tobacco in Asia. The laboratory buildings for the Institute when completed and equipped will provide additional opportunity to the research worker to further concentrate on various problems facing the tobacco grower. I would suggest, therefore, that those who are connected with tobacco research work will make full use of the opportunities now given to them to produce practical results of lasting benefit to the primary producer.

10. It is my fervent hope that from the laboratory of which I have great pleasure in laying the foundation, will flow results of research which will enable the cultivator to produce tobacco of high quality with higher yields and thereby obtain a better margin of return for his produce to give him a higher standard of living, the country to earn more revenue and foreign exchange and the trade to find easy markets for tobacco thus benefiting our great nation.

APPENDIX XIV

BRIEF SUMMARY OF THE RECOMMENDATIONS OF BHIDE COMMITTEE ON TRACTOR SERVICING

As complaints had been received by Government regarding inadequate arrangements made by the importers and dealers of tractors for supply of spare parts and after-sale servicing facilities for tractors sold by them, the Government of India in their Resolution No. F.16-107/52-SC, dated the 11th February 1953 appointed a Committee with the following terms of reference:—

- (i) The standard of aftersales service which the Tractor importers and dealers should be required to possess and standard charges for such service.
- (ii) The minimum stocks of spare parts required to be kept by tractor importers and dealers and the price structure for the various kinds of spares.
- (iii) Facilities to be provided by the Tractor importers and dealers for training of tractor operators.
- (iv) The possibility of starting the manufacture of tractor/implement parts in India.

The Committee has submitted its report to the Government. Briefly its recommendations are as follows:—

Internal Manufacture.—The Committee recommended that active steps should be taken to develop the internal production of tractors, tractor-drawn and similar agricultural implements and spare parts so as to achieve self-sufficiency in respect of these items within the minimum possible time. It wanted this “very important matter” to be examined at the appropriate level by the concerned Ministries of the Government of India at an early date.

Servicing Arrangements.—Every importer of diesel and other type of tractors, should make arrangements for maintaining an adequate stock of spare parts with the dealer,

distributor or sub-distributor in the district, *taluk* or *mofussil* headquarters for being made available to the customers at fair prices within a reasonable period from the time of receipt of an order.

The Committee suggested that three services (*viz.* 100, 200 and 500 hours bi-monthly interval) at the customers' premises should be rendered by the dealer free of charge. The service mechanics deputed by the dealer should make entries regarding the services rendered in a log book to be supplied along with a tractor when it was sold.

The Committee recommended that the importers should maintain properly equipped service stations for repairs at convenient centres for the needs of their customers and suggested the location of a service station in a district or *taluk* headquarters where at least 50 units had been sold. The service station should be properly equipped and staffed with trained mechanics who should be able to carry out the work satisfactorily within a reasonable time.

The report pointed out that a guarantee covering the servicing arrangements should be given by the dealers or the importers to their customers when effecting sale of the machinery. Similarly, a guarantee should be given by the trade to replace defective parts noticed within the first six months and to undertake three free servicings in the first six months.

Copies of maintenance and operational instruction books, preferably in the regional languages, should also be supplied free of cost for the use of owners at the time the sale was made with a view to placing in the hands of the buyer full information so that he might use his talent in case he failed to secure timely assistance from the importer or the dealer.

As in the case of pricing of spare parts, the servicing charges vary and depend on so many factors, and the Committee felt that it should be possible to prepare an estimate of charges for standard items of work required in the repairing and servicing of tractors, while special items can be covered by separate charges. The standard charges should cover only labour and supervision, the cost of spares used being charged for separately. The charges should be displayed at the workshop or the service station. As most of the repairs were to be carried out in or near the area

of operation, the importers of tractors and spare parts should be willing to make available to the farmers the services of an experienced travelling mechanic in an emergency.

Training Facilities.—The Committee stressed the need of proper training facilities being made available. Arrangements for the training of drivers on the particular type of machine should be made by the importers at frequent intervals for the benefit of the customers, such training being the primary responsibility of the importers or the dealers. Although the ideal arrangement, would be to train the farmer himself in the art of driving and servicing of tractors, it would perhaps be too much to expect it at this stage. It might, however, be possible for the dealers to give further training to the drivers in the servicing of tractors specially during the off-season. If individual firms found it inconvenient to do so, they might form themselves into small groups and had a combined training programme.

The Committee suggested that similar training might be undertaken by the technical training centres of the Union Ministry of Labour or such other institutions as might be available in the country. It felt that the training of engine, tractor or automobile mechanics required more than the resources that could normally be made available by most of the individual importers and recommend that efforts might be made to induce the Labour Ministry to institute short-time courses for tractor mechanics and servicemen in their training centres.

Import of Spare Parts.—While the Committee left the question of importing and holding a properly balanced stock of spare parts to be decided by the trade in the light of their individual experience, it recommended that the minimum import of properly balanced spare parts, which might be classified into two categories, *viz.* slow-moving and fast-moving, should be on a sliding scale related to the number of tractors imported and suggested the following percentages:

- (i) 100 tractors and below—20 per cent. of the value of tractors,
- (ii) 101 to 300 tractors—15 per cent.,

- (iii) 301 to 500 tractors—10 per cent., and
- (iv) 501 and above—7 per cent.

Models and Makes.—As many as 25 different makes of tractors of varying horse-power at the draw bar were now being imported into India and requests were being received for the import of new makes. The import of a small number of new makes was being permitted with a view to finding out their suitability under Indian conditions.

For new makes of tractors, the Committee recommended that a small number—not more than 10—might be allowed to be imported in the first instance for purposes of demonstration, without having to create a complete service organisation. If the results of the trial were found satisfactory, larger imports might be allowed on an *ad-hoc* basis and subject to adequate servicing arrangements.

The Committee pointed out that the proposal for setting up a tractor testing station should be finalised and the station opened as soon as possible. It felt that such an organisation was essential for exercising proper control over the various types and makes of tractors being brought into use.

APPENDIX XV

NOTE ON ESTABLISHMENT OF DAIRY UNITS IN MADHYA PRADESH AND DIFFICULTIES ENCOUNTERED IN ITS EXECUTION
Shri Abdul Hamid Khan, Deputy Director of Veterinary Services, I/C Dairy Development, Madhya Pradesh

Preamble.—The combination of a rapidly increasing population with the existing system of agriculture, capable of providing only a low subsistence level, presages double disaster *viz.*

- (1) That the already dangerously low living standard should be further reduced, and
- (2) That the danger of the soil depletion would be increased in the attempt to grow more food, with its attendant evil of maintaining more, but underfed, livestock to carry on increased cultivation on marginal and submarginal lands, now being brought under plough.

Central issue, therefore, is that how far and by what means rapid improvement may be brought about in the existing farming system, which in Madhya Pradesh is primarily and essentially a subsistence or bread farming, based largely on cereal production. This entails keeping large area for long period under fallow. The change has become overdue and imperative, but it is not expedient to introduce it in any area unless that is ripe for an evolutionary change. The evolutionary process, however, is motivated by force of example and influence of competition, exhibited through successful experiment, at the farmers' own land or within their visual observation. The farmers, world over, believe in *via trita*, *via tuta* and look over the hedge to see what their more successful neighbour is doing and how he does it and then to copy it if facilities and means are available.

Object.—With the consideration referred to above, Madhya Pradesh Government have initiated a scheme for establishment of one dairy unit in each district of the State. This is in order to try mixed farming under the diversified

conditions of soils, climate and social structure obtaining in the different regions of the State. The scheme envisages to bring about progressive change from the old to new farming system in three phases *viz.*

(i) *Initial stage*.—This phase, which takes 3 to 4 years embraces:—

- (a) Acquisition of representative land in respective regions, *i.e.* composite area of arable land, rough pasture, derelict and depleted soil and bush forest.
- (b) Layout and development of such land and construction of requisite buildings to meet the requirement of new system of farming, *i.e.* dairying integrated with arable farming.
- (c) Introduction of very intensified system of cultivation, *i.e.* raising in a year 3 to 4 crops under irrigation and two without.
- (d) Introduction of ley farming as a new venture in the State.
- (e) Study of grass land management *vis-a-vis* careful planning of suitable grazing technique as against the antiquated and distressingly wasteful grazing system in vogue at present.
- (f) Organisation and training of farm labour to do job systematically and scientifically, in order to prepare them to take up the working of the unit on co-operative basis on some future dates.
- (g) Training of the raw managerial staff in the new system of farming which is more intensified and therefore more dicatc in its economical balance. The higher the economic level of the farming system the more becomes the necessity to find out the solution of its problems by technological investigations.

This is done by frequent visits of the headquarters technical staff who study themselves on the spot, the responses of various cultural methods and ecological factors on different crops and pasture as well as the livestock raised thereon. In other words, it means concurrently self-study and as well the training of the field staff.

(ii) *Commercial stage*.—Activities during this phase are:—

- (a) The unit is stocked with the dairy herd and production of milk as well as raising of fodder and other crops are initiated.
- (b) Hauling and sale of milk are rationally organised in the consuming market.
- (c) Systematic commercial accounts and planning for working out prime cost and on-cost of production as well as sale expenses. Government Capital Account and Current Accounts are accurately maintained on commercial system for preparation of detailed Balance Sheet and Profit and Loss Account.

It has been realised, that the development of the unit on co-operative or collective basis as detailed under state (iii) below, cannot materialise successfully unless the undertaking is run on commercial lines, judged by properly prepared and duly audited Profit and Loss Account.

Of 7 Dairy Units, though as yet not fully equipped only 4 have just entered into the second phase, i.e. commercial. Three of them are showing signs of attaining self-financing stage despite under stocking which is much below the production capacity as originally envisaged. The only dairy unit running on loss in the one built on the laterite soil. The sheet anchor for success of this unit is the new ley or permanent rich pasture raised under irrigation duly dressed with calcium and phosphatic manures. Ample irrigation facilities do exist here but the formidable obstacle in raising ley or maintaining green pasture is the system of tending cattle in the close-by villages, i.e. the free movement of cattle on the whole community area without any escort for full 6 dry months, i.e. after harvest of kharif crops, and thereby revaging day and night, the only green spot in the whole area.

(iii) *Development stage*.—On financial ground Government do not propose, at present, to initiate this phase which visualises the following revolutionary developments through the evolutionary processes:—

- (a) Organising disciplined and trained farm workers referred to in (i) above. On co-operative

system particularly on the model of Moshav Ovdim (Hebrew) where the Jewish authorities have rejected the idea that standard of living of the colonist should be dictated by the economics of the existing farming system. Instead they have fixed a satisfactory minimum standard and have endeavoured successfully to evolve a farming system that would sustain it. The Moshav Ovdim, a labour village, is organised as a co-operative settlement of small holders based on four principles, *viz.* National land, self-labour, co-operative institutions and mutual aid.

- (b) To organise and develop mixed farming on private holdings in the surrounding areas and linking them for sale of milk with the co-operative dairy unit and thereby do the spade work for creating Milk Marketing Board.

Difficulties encountered.—These may be (i) administrative and (ii) financial.

(i) *Administrative difficulties.*—(a) Unexpectedly and unduly long time, ranging from 2—4 years, is required in acquisition of the full area for establishing a dairy unit. In most of the cases only few acres of land are acquired and given possession to the dairy unit for construction of buildings through Public Works Department. Formalities connected with the execution of buildings take another 2—3 years. In the meanwhile few temporary structures are constructed and the dairy is started on the limited land available in the hope of getting the full area and requisite number of buildings early. But on account of one or the other unforeseen technical grounds, the execution of above works remains unrealised with the result that the public as a whole and farmers particularly get bad impression of our work due to unfinished, unimpressive and commercially unsound working of our enterprise in its initial stage of 4-5 years. This defeats our central objective, *i.e.* demonstration. This may be remedied by two ways, *viz.*

- (i) Appointment of dairy expert and attaching him to the Minister of Agriculture to work as liaison. He would apprise, the technical points of this enterprise, to the various administrative

departments and expedite the work by bringing about required co-ordination which is deplorably lacking at present.

- (ii) If this is explicitly recognised that there is much more revolutionary force in the scheme than the successful raising of the stock and producing milk from them, therefore, its extension in the Community Project under the National Planning, must be considered as established fact. The units discussed above vary widely in structure and organisation to suit particular environmental, economical human circumstances which vary from one area to another, with this range of units it should be possible to find combination of features from one or more than one that is most likely to suit the condition in a new area where development on mixed farming is projected.

Considering the magnitude of the work and potentiality of the plan, the device should be adopted to set up a Board with capital subscribed entirely by the Government. The Board may be composed of five *ex-officio* Directors, viz. (i) Development Commissioner, (ii) Director of Agriculture, (iii) Director of Veterinary Services, (iv) Registrar, Co-operative Societies and (v) Chief Engineer, Public Works Department and Irrigation. The Deputy Director of Dairy Farms would act as a Managing Director of the Board.

(b) It has already been pointed out that a progressive and well-balanced programme of technological investigation at each unit, is required to be carried out by the head-quarter staff for finding out the solution and training the Dairy Managers and the Dairy Assistants or would be Dairy Development Officer and six Dairy Assistants, the progress in training the future dairy workers for further extension of this plan, is also held in abeyance at present. Had there been a Liaison Dairy Officer between the Department and State Ministry, he would have convinced the Government the necessity of the retention of these posts. I would, therefore, strongly stress the appointment of a Liaison Officer as referred to above, pending the consideration of setting up the Board.

(ii) *Financial difficulties.*—The budget of these commercial units are constructed on similar lines as of the administrative or executive departments which does not suit the commercial enterprise. The budget is prepared 1½ years in advance on the basis of three years average. In dairy units, due to improved environmental factors, milk may increase than estimated in advance of 1½ years. This increased production would need increased cost on production ration and increase in the dairy equipment and selling agencies. In commercial concerns it comes immediately on requisition but in the present system of budgeting it takes 6—9 months to get an additional grant which does not prove conducive. Further, if there is a break down of transport, a commercial enterprise would immediately arrange for it but in our case months together are wasted without any fruitful result. The solution, therefore, lies in isolating from the rest of the Government accounts the commercial accounts which should be budgetted and kept in ordinary commercial form. I have quoted a simple instance of production and transport as an illustration. There are many economic difficulties at every phase of working due to the existing budgetary system and financial control and unless these are suitable modified, I am afraid Government commercial enterprise would be greatly handicapped, resulting in failure in certain cases.

APPENDIX XVI

BRIEF NOTE DESCRIBING THE LAND PROBLEMS AND THE LAND REFORMS UNDERTAKEN IN VARIOUS COUNTRIES

BURMA

INTRODUCTION

Burma is predominantly an agricultural country, 85% of its total population of 18 million, depend entirely on agriculture.

Of the total area of 103 million acres, 21 million acres is cultivated land, 20 million acres under reserved forests, 19 million acres culturable waste and 43 million acres under rocky mountains and forests. About 1½ million acres is irrigated land. The staple crop of Burma is paddy, covering 12 million acres, other crops are sugarcane, oil seeds, pulses, rubber etc.

AGRARIAN PROBLEMS

During the British Rule, all land other than land owned by individuals was declared State land. Paddy cultivation was encouraged and any person could occupy State land by clearing the jungle and cultivating the land. If he paid land revenue for 12 years, he was given the rights of property including the right to sell or lease the land. Agricultural credit was available only on high rates of compound interest. Crop failures and lack of thrift increased peasant indebtedness and land passed from agriculturists to non-agriculturists, who sublet the lands on rack-rents. With the depression in 1930, the condition of agriculturists deteriorated further.

Tenants usually worked on a lease for one year with no security of tenure, the rent was unduly high (over 1/3rd of the gross produce), there was no provision for reduction of rent in case of crop failures and the tenants were bound by their leases to sell paddy only to the landlords

During the British regime, a number of measures were contemplated from time to time but the Bills could not be passed on account of the opposition of landlords. The Land Alienation Act of 1939 prohibiting sale of land to non-agriculturists and the Land Purchase Act of 1941 providing for purchase of lands held by non-agriculturists could not be enforced.

After World War II and before the attainment of Independence the Burmese Government took some measures for the well being of the peasants, including debt legislation and fixing the rent at twice the land revenue. The power to grant lease or eject tenants was taken away from the landlords and vested in Village Tenancy Committees.

LAND NATIONALISATION

After the attainment of Independence in 1948, Burma laid down in her Constitution that the State is the ultimate owner of all lands and the State shall have the right to regulate, alter or abolish land tenures or resume possession of any land and distribute the same for collective or cooperative farming or to agriculturists' tenants. The Land Nationalisation Act was passed in 1948, but was repealed subsequently and replaced by the Land Nationalisation Act of 1953.

The Land Nationalisation Act provides that some areas of land may be exempted from resumption by the State and allowed to be retained by the owners on the fulfilment of certain conditions. Liberal scales have been provided for this purpose. Members of religious order or institutions may retain all their lands. Agriculturist families may retain paddy land upto 50 acres, non-agriculturist families upto 20 acres.

AGENCY

The agency for nationalisation of land is the Central Land Nationalisation Committee, which supervises the work of District Land Committees and below them the Village Land Committees. The chief agency for the redistribution of land is the Village Committee which is elected from among the villagers themselves.

The Village Committee submits proposals showing (1) the land to be retained by the owners, and (2) the balance of the land to be resumed. When orders of Government have been passed, the land is resumed by the State and made available for redistribution.

Applications for distribution are then called for. The Village Land Committee calls a meeting of the people of the village tract concerned to determine as to who are entitled to land and to consider the fixation of area of *tadontun* (a measure of land which can be worked by a pair of bullocks) and the method of distribution. The area of land available for distribution, the persons to whom land is to be distributed are then determined.

PRIORITIES IN DISTRIBUTION

- (1) To those tenants and agriculturists who possess less than $1/5$ th of the *tadontun* fixed for that area.
- (2) Those who have more than $1/5$ th but less than *tadontun* fixed for that area.
- (3) Seasonal agricultural labourers.
- (4) Other casual field labourers.

COMPENSATION

The Act provides for payment of compensation on a graded slab system on the basis of the land resumed by the State. This varies from 12 times the land revenue for the 100 acres, to 2 times the land revenue for land above 1000 acres but not above 1100 acres. For land above 1100 acres, an amount equal to the land revenue is paid.

The Land Nationalisation work was carried out in 8 town-ships and 167 village tracts.

Exemption from resumption was granted in respect of 125,495 acres and resumption was made in respect of 142,437 acres and distributed to 19,225 families.

Out of the total area of 11,120,343 acres of land under occupation by the end of 1947 in Lower Burma, 5,745,263 acres are in the possession of agriculturists while 962,327 acres and 4,412,753 acres are in the lands of Resident Non-Agriculturists and Non-Resident Non-Agriculturists respectively.

In Upper Burma out of the total 8,203,498 acres of occupied land, 7,125,710 acres are in the possession of agriculturists and 45,473 acres and 625,315 acres by Resident Non-agriculturists and Non-Resident Non-Agriculturists respectively.

Total area in Burma is 102,975,000 acres.

CAMBODIA

Cambodia is one of the smallest countries in this region with a total area of 175 thousand Sq. Km., with a population of 45 lakhs, the average density being 25 persons per Sq. Km.

Of the total area, only 12% i.e. about 2,115,000 hectares, is under cultivation. The land resources are, thus, very inadequately utilised, the main obstacle being the lack of man-power. In spite of this, however, there are regions of comparatively dense population and the average holdings are very small. About 69% of the holdings are less than 2 hectares. The distribution is un-even, 60% of the farmers own about 25% of the cultivated land. Considerable areas are given on leases, the tenancy is generally for one year at a rent varying from 30% to 50% of the produce. In case of the share-cropping system where the land-owner supplies not only the land, but also animals, implements and seeds, the share of the owner may be as large as 70% of the gross produce. The farms are not very profitable. This is due mainly to the lack of technical development, the inadequacy of equipment, the small size of holdings, the agricultural indebtedness and the low price paid to the producers.

Government have made attempts to persuade people to move out from the heavily populated regions by grants of land, but little progress has been made so far.

Agricultural credit can be obtained only on usurious terms. Often retail traders are given advances which are payable with interest of 100 to 200 percent, at the time of the harvest. Short term credit bears an interest of 5 to 10% per month. In order to fight against usury Provincial Agricultural Credit Banks have been established, but on account of the lack of capital, credit from these Banks extends only to small part of the rural population. The farmers are at a great dis-advantage in the sale of

their produce and the major part of their profit goes to collecting agents who speculate purchases sales and prices of agricultural commodities. Producers' cooperatives have recently been started. A few pilot schemes have also been set up with regard to the development of good varieties of rice and mechanised farming on a cooperative basis.

FORMOSA

Formosa has a land area of 35,960 Sq. Kilometers. 900,000 chia are cultivated = 1 chia-2.4 acres).

The total population is 8 million of whom 4.5 million, or 65% depend upon agriculture.

Of 900,000 chia of cultivated land, 61% are paddy fields and 39% are dry lands used for growing sweet potatoes, sugarcane, tea, pine-apple, jute, peanut and citrus fruits. Rice and sugar are the major farm products of the island.

The average farm is 1.2 chia. 80% of the total farm families hold less than 2 chia. Before the introduction of land reforms, there were 36% tenant families, 24% part owner families, 32% owner-cultivators and 8% farm hands families. But more than 41% of the total cultivated land was held by tenants. Rents were atleast 50% of the crop harvest even though the tenants supplied cost of cultivation themselves. The leases were generally for one year and were renewed annually on payment of premium from year to year.

The land reforms programme included

- (i) reduction of rents to a fair rent
- (ii) sale of public land to tenant families
- (iii) conferment of ownership upon tenants.

FIXATION OF FAIR RENTS

Lands were classified on the basis of their productivity and the standard yield for each class of soil fixed. The maximum rent was to be at 37.5% of the standard yield.

SALE OF PUBLIC LAND TO TENANT FARMERS

In Formosa, there were 180,000 chia of public cultivated lands. 100,000 of this were allotted to the Formosa Sugar Corporation for sugarcane production; 60% of this land

was cultivated by farm hands and 40% by tenants. The area of 80,000 chia were mostly leased to farmers by Government. The leases were usually for four to nine years and could be renewed upon expiration. Tenants paid 25% of the crop as rent to Government. Much of this land was sub-leased on high charges.

Government decided to sell the land at a price of 2.5 times the gross produce in easy annual instalments spread over 10 years. Each year 0.25% of the produce had, thus, to be paid as purchase price. The land tax payable to Government was something like 10% of the produce. Altogether the purchase price instalment and the annual land tax did not exceed 37.5% of the annual crop.

The purchase price was payable in kind for paddy lands and in cash for sweet potatoes.

Altogether 35% of the total public land was thus sold to tenants.

CONFIRMATION OF OWNERSHIP ON TENANTS.

In the first instance, a minimum term of 6 years was given to the tenants and the payment of premium for renewal of leases was abolished. The rent reduction programme was carried out successfully on 31% of the land i.e. on practically the whole of the land held by tenants.

The Government set up Tenancy Committees in each town and district to mediate and settle rent and lease disputes. This agency proved very effective. Field teams were also sent by Government in rural areas to investigate the condition of tenants and to ensure that the land reforms were implemented. In February 1953, Government started 'the land to the tiller' programme (purchase of ownership rights by the tenants) and the work was completed in January 1954. The landlord was, with certain exceptions, allowed to retain a maximum area of 3 chia of medium grade paddy land or its equivalent (about 7.2 acres). Tenant holdings above this limit were purchased by Government and resold to farmers at 2.5 times the gross produce. The tenants were required to pay the amount in 10 years. The total amount payable by them each year was not to exceed 37.5% including the instalment of the purchase price and the annual land tax.

Payment of compensation to the proprietors was made in two form viz. (i) stocks of State enterprises and (ii) commodity bonds.

STOCKS OF STATE ENTERPRISES.

Four State enterprises were sold by Government to landlords to cover 30% of the total purchase price. On the issue of the stocks, the landlords became the shareholders and the corporations were converted into private enterprise.

COMMODITY BONDS.

For the balance of the compensation, commodity bonds were issued to the landlords. This entitled them to get annual instalments of rice in the form of produce and sweet potatoes in the form of cash. The bonds bear 4% interest.

A total of 143,000 chia of lands was thus purchased and resold to the tenant farmers. Before it 38% of the total private farm land was under tenancy and 53% of the total farm families were tenant farmers. After the reforms, the area under tenancy was reduced to 15% and the number of tenant families was reduced to 26%.

INDONESIA

Indonesia is an island country, consisting of about 3000 islands. A general land utilisation description is as follows:—

Java and Madura	Agriculture land	.	.	9,828,700	ha
	Govt. forest	.	.	3,115,600	"
Outer Islands:	Agriculture land	.	.	56,087,600	"
	Govt. forest	.	.	120,817,900	"

In Indonesia the estate (Plantation) agriculture was previously almost entirely foreign operated, the Indonesian population being mainly employed in subsistence farming on small plots. Out of a cultivated area of 9 million ha. agricultural land in Java and Madura, 1 million ha. was being used for estate agriculture. In the outer Islands the total area of foreign operated estate amounts

to about 1.5 million ha. Estate agriculture is mainly concerned with producing commodities for export.

The Government policy is *not* aimed at converting estate agriculture into subsistence agriculture but the problem is how the estates gradually can be taken over by the Indonesians themselves, so that the profits are not taken away out of the country.

During the last World War large parts of estates were destroyed by owners and converted into lands designed for native agriculture for the purpose of increasing food production and also as a part of the "total war-fare" policy of the Dutch army. After the Revolution (struggle for independence) large parts of these estates have been settled by "squatters". Many of the estates in Java were also occupied by local people. This has led to a difficult situation and the Government are faced with a difficult issue; how to maintain these estates as a source of national wealth, providing at the same time for a source of living for the persons who have taken possession of the lands?

Estates located in mountains and hilly areas and in a sense functioning as soil conservers like forests were also converted into native farming by these squatters. Much damage has been done from the point of view of soil conservation.

To meet this problem an obvious method is to encourage emigration from over-populated Java to the outer islands, where the land is under-populated. But there are many difficulties in pursuing this policy. According to the existing customary laws in the outer-regions, the community to a certain extent possesses sovereignty rights on the forest and waste land. This is called "hak ulajat". Moreover, anyone not belonging to the community is not allowed any title on land, except when he leaves his own culture and promises to become an inherent part of the community.

Closely related to this is the problem of shifting cultivation in the Outer Regions. Migration of the people is considered necessary not only because of heavy population but as a consequence of careless utilisation of land. It is observed that the system of shifting cultivation in the long run cannot be tolerated. The difficulty, however, is that people are not easily persuaded to permanent farming and in many cases circumstances do not permit the development of irrigation works.

Cadastral registration has not taken place in all parts of the country because individual rights vary throughout the country. With respect to the tribal tenure the Government does not make any regulation. It only takes action when some disputes among the people arise.

In some areas the economically stronger people have been buying land from their poor neighbours through "ngidjo". By "ngidjo" is meant loan with tremendous high interest, which loan has to be paid in kind. This accumulation of land in the hands of economically stronger people creates a problem. They just give the land to share-croppers who usually get half to one-third of the produce.

It is observed that the problem of share-cropping should be regulated by law. However, a desirable result could not be expected as long as there are landlords who have much influence among their share-croppers. Accordingly some people think that the size of holding ought to be limited. This ceiling of holding might be regulated by local authorities but legalised by the Central Government. But the regulation of the minimum size of farm for the present is not so easy as the people with Muslim law of inheritance will make objection to it.

There is also the problem of sugarcane planting. The farmer was free to lease his land to sugar factories or to cultivate it himself. On account of indebtedness or pressure by local authorities, he was, however, in many cases forced to lease his land. Under a recent regulation rent is fixed annually by Government. The objective of the policy is that the land should be taken back by the farmers and cultivated by them.

JAPAN

Land Reform measures in Japan which attained remarkable success in a short period of 3 years have been the result of agricultural land policies followed by the State since about 1947. During this period tenants (actual tillers of the soil) in Japan were granted ownership rights in about 1.8 million cho (about 4.5 million acres) of tenanted land.

Land system Prior to Agricultural Land Reforms.

In Japan tenanted land occupied near 50 per cent. of the total cultivated area. 70 per cent. of the total farm

families in Japan were wholly or partly tenant farmers and about 25 per cent. of them were landless.

The distribution of land was very uneven. About 50 per cent. of the owners held small holdings of less than 5 tan (a little more than one acre) and occupied altogether only 16 per cent. of the total cultivated land. Large owners of more than 5 cho (about 12 acres) constituted only 3 per cent. of the total number of owners but held about 30 per cent. of the total area.

The main characteristics of the tenancy conditions in Japan prior to the adoption of land reform measures were:

- (a) no security of tenure for the tillers of the soil; and
- (b) high exorbitant rents paid in kind.

These factors resulted in disputes between the owners and the tenants which became more acute in the 1930s.

A number of laws were enacted from 1924 onwards to regulate landlord-tenants relations, but they were inadequate measures and did not prove effective.

Process of Agricultural Land Reforms.

In December, 1945, the Japanese Government enacted legislation which provided for:—

- (a) reduction of rents (enabling the tenants to have a fair reward for their labour); and
- (b) commutation of rent in kind into cash rents.

In October, 1946, the Government took steps to confer ownership rights on tenants on a very large-scale and restricted the right to let land. The Government purchased the land from absentee owners and sold it to the tenants. The planning of purchase and sales was done by about 10,000 Agricultural Land Commissions, composed of elected members, under the guidance of local and national Government. These measures resulted in large-scale improvement of tenancy conditions and led to the disappearance of absentee landlordism in the State. In Japan, now, tenanted land accounts for only 9 per cent. Also, there has been considerable decrease in the number of tenant cultivators who now account for only 8 per cent. as compared to 28 per cent. earlier. With the enforcement of

the principle that all rents should be paid in cash and not in kind, the rents became very low and they now appear negligible as compared to old rents.

LAND PROBLEMS IN MALAYA

The Federation of Malaya is a Federation of nine States and two Settlements. Land administration is one of the subjects falling to the States. The sole executive power falling to the Federation in land is the power of co-ordinating the different forms of legislation obtaining in the States.

Agricultural production in Malaya is divided between large estates and small holdings. Land utilisation in the two divisions is as follows:—

Rubber 3,600,000 acres of which nearly 2,000,000 acres are in estates, and about 1,600,000 in small holdings;

Rice 800,000 acres practically entirely peasant cultivators;

Cocoanuts 500,000 acres (both estates and small holdings);

Pine apples 26,000 acres;

Oil palms 107,000 acres (all estates);

Tea 6,000 acres.

Problems of large estates are akin to those of industry rather than agriculture and the conditions of employment, sanitation and housing are covered by a comprehensive and well enforced labour Code.

Apart from estates, Malaya is predominantly a country of peasant proprietors. The main problem of their security is to prevent them from disposing of their lands improvidently. The problem has been dealt with in two ways: (1) the establishment of a system of registration of title, based on Cadastral Survey throughout the whole of Malaya including land alienated for mining, except the Settlement of Penang and parts of Malacca. (2) enforcement of Malaya Reservation throughout all the States (detailed below).

Although the vast majority of small holders are proprietors, lands have been tenanted in many cases. The rents are usually paid in kind which have been upto 50 per

cent. of the crop but there has been a tendency to demand heavy rates of premium be letting or commuting rent in kind for money. It is, however, not a major problem like the similar problems of India and Burma; and before taking action to deal with it, the Government has arranged for proper investigations, which are being done by arrangement with the University of Malaya and by the Agricultural Economist of the Department of Agriculture.

Another problem is that of fragmentation of holdings. It is only a local problem and confined to the more densely populated parts of the country. This is largely due to the Muslims law of inheritance. Due to this law it has not yet been possible to prohibit distribution of land into shares of less than a fixed amount, either by making one heir buy out the others or by compelling sale and division of the proceeds. Fragmentation is, however, not so serious as the common practice for the co-owners is to lease holdings to one of themselves or to an outsider, recovering rent in kind, and themselves renting or acquiring land elsewhere for their own cultivation.

The other two serious problems are those of size of holdings of rice and rubber lands, as a result of changes in methods of cultivation. Introduction of machinery for rice cultivation will mean that one family will be able to cultivate a far large area than it has at present and the consolidation of holdings will have to be considered together with the disposal of those persons whose labour is no longer required.

The rubber problem is a little different. In Malaya rubber on small holdings was planted 30 or 40 years ago and yields are decreasing because of its age. It is now also becoming urgent to replace all low yielding rubber with high yielding rubber because of competition of synthetic rubber production. The difficulty is to do this on a small holding, as young trees will not grow well if overshadowed by mature trees, which would be the case, if an average small holding is not all replanted at the same time: and if the whole holding is replanted at the same time, the owner has nothing to live on during the 5 or 6 years before the replanted trees came into production. To overcome the difficulty, replanting is being subsidised by the Malayan Rubber Replanting Board, which does not, however, solve the whole difficulty. It is perhaps possible to deal with this problem by co-operation by solidating

small holdings into large ones. Thus the main problem is to reconcile efficiency with small holdings. Choice will have to be made between large scale plantations with greater production or preserving the small owner or peasant proprietor and putting up with the lower production and less welfare for the people as a whole.

Malaya Reservations.

Malaya Reservation legislation is in force throughout all the States. The purpose of the legislation is to prevent Malays in most areas from disposing of their land to non-Malays or from charging or mortgaging it. Their land also cannot be attached and sold by the courts to recover debts due by them to non-Malays, who are mainly Chinese and Indian shop-keepers. It is hoped that the development of co-operative credit societies would provide an adequate substitute to Malays for financing their agricultural operations.

Since the war the establishment of the Rural and Development Authority has provided an additional source of credit for the Malay small-holders; further source of capital are the Rubber Replanting Fund. Amendment to the Malay Reservations legislation is now under consideration to enable the Malay to charge his land to the Authority or similar bodies.

However, inspite of above measures there are still large number of Chinese shop-keepers living inside Malay Reservations, and having extensive credit arrangements with Malays.

In addition to the alienated land, the Reservations include large areas of State land set aside for the future needs of Malays. In these areas land cannot be alienated to non-Malays.

It is objected that this policy hinders the proper exploitation of the land which has been set aside, and that much more land has been set aside than is necessary for Malays needs, especially potential mining lands. It is also argued that the policy is discriminatory. It is, however, held that if this had not been done, in many districts Malays would have been dispossessed of their land and become landless.

NEPAL

Nepal has a total area of about 54,000 square miles and a population of 8 millions, 95 per cent. of whom are engaged in agriculture. One fifth of the land is flat, called the Tarai plains, with an average annual rainfall of about 40 inches. Rice, wheat, tobacco sugar cane, jute and oil seeds are grown in the low-lying areas and millets, corn, buck-wheat, soya-beans etc. in the terraces of the hilly regions.

The land is held on the ryotwari tenure, the land-owner having the right to transfer or let his lands. A considerable area is held by tenants, whose terms and conditions are determined by contract. There is no legislation to regulate the period of tenancy or the rate of rent. Some tenants of Buta land, however, hold their land on specially privileged terms, they enjoy the right of transfer and are either rent-free or pay only the assessment.

In 1952 a Land Reform Commission was appointed. This Commission has submitted its preliminary recommendations to the Government. The Commission has recommended that tenants should have security of tenure subject to the land-owners' right to resume 16 acres in the Tarai Area or about 4 acres in the hilly area. It has further recommended that the vast areas of undeveloped cultivable land available in the country should be used for the resettlement of landless persons. Though settlement of land has been made on the *raiayatwari* basis, the land revenue is collected through a non-official agency. In the hills, the *talukdar* collects the revenue at 5 per cent. of the Commission. They enjoy a status somewhat similar to that of *zamindari* and there are complaints of illegal exactions by them. In the Tarai area, the land revenue is collected by *zamindars* at 3½ per cent. commission; assisted by *patwaris* who get 1½ per cent. In addition they are given home-farm lands.

The Land Reforms Commission has recommended the abolition of the *zamindari* system and the direct collection of land revenue through a Government agency with the active co-operation of village *panchayat*.

Except the valley of Kathmandu, no cadastral survey has been carried out in the rest of Nepal. In the land records only the names of land-owners are recorded, the

names of tenants are not recorded. The Commission is of the opinion that in the absence of a proper record of rights enforcement of land reforms will be difficult and have stressed the need for building up a strong revenue administration.

Regulation of rents is also under the consideration of the Government.

PAKISTAN

PUNJAB

Punjab has an area of 39 million acres of which 17 million acres are cultivated. The settlement is on the mahalwari system which has some features of both the ryotwari and zamindari systems. About 57 per cent. of the land was held by tenants, the rest was cultivated by peasant-proprietors. Of the total tenanted area, about 5.5 per cent. was cultivated by occupancy tenants and over 50 per cent. by tenants-at-will. The bulk of them paid rents in kind and in canal areas they paid half the produce, in areas irrigated by wells from $\frac{1}{4}$ th to $\frac{1}{2}$ of the produce.

Under the Punjab Tenancy (Amendment) Act, 1952, occupancy tenants who paid no rent except Government dues were made owners without payment of compensation. Occupancy tenants paying their rent wholly or partly in cash were made owners on payment of compensation. The Government had undertaken the responsibility for advancing loans to the tenants to enable them to pay off the compensation. Occupancy tenants paying rents in cash were made owners of a part of their holding corresponding to their share of the produce without payment of compensation.

The Act also provided that inheritance would be restricted to a nominated male child in the case of tenants. 100 acres of un-irrigated and 50 acres of irrigated land were to be regarded as the landlord's reserved land. All the lands beyond this limit were to be surrendered for leases to tenants. So far as the reserve land is concerned, the landlord could either cultivate it personally or let it to tenants. A similar limit was placed upon the maximum land which a tenant could hold—this was put at 25 acres. Illegal exactions by the land-lords were

made a penal offence. By the Punjab Protection and Restoration of Tenancy Rights (Amendment) Act, 1952, tenants-at-will were given security of tenure in areas other than the areas reserved by the landlords. The tenants have, however, no right to sublet.

Jagirs (other than jagirs granted for Military services or jagirs granted to Religious or Charitable Institutions) were abolished.

SIND

Sind is a Zamindari area where the land is owned either on service tenures with the right to transfer or mortgage the land or on inam tenures (jagirs) where the land is held rent-free or on quit rent. In jagir lands a subordinate tenure called Mukhadim is also found. The Mukhadim is an intermediary with heritable and transferable rights. The Mukhadim is liable to pay to the jagirdar the land-revenue assessment less water rate, if any. The Zamindars also give the land to farm managers usually on five year lease. The bulk of the land is cultivated by tenants-at-will called Haris who pay half the produce to the landlord. By a Tenancy Act of 1950, some security has been given to Haris. A Hari who had cultivated 4 acres of land from the same Zamindar continuously for three years was given permanent rights. Where he had cultivated the same piece of land for three years, he acquired permanent rights in that particular piece of land but where he has cultivated different pieces of land from the same Zamindar, he acquires right to cultivate so much the land of that Zamindar as is declared to constitute a family holding. Besides the Government have also fixed the share of the produce payable by Haris and have declared the exactions as illegal.

In order to relieve the pressure on land, the Government also undertook schemes for resettlement of Haris on Government lands in the Lloyd Barrage area. 85,000 acres of land have so far been granted under this Scheme.

A Bill for the abolition of intermediaries has been drafted and is under the consideration of the Government.

NORTH WESTERN FRONTIER PROVINCE

This Province has a total cultivated area of 2.7 million acres, the land system being Zamindari. About 40 per cent. of the cultivated area is held by owner-cultivators and the

rest is held by tenants among whom about 10 per cent. of the land is held by occupancy tenants and about 3 per cent. by tenants who pay no rent or only a nominal rent, and the rest by tenants-at-will. The common form of rent is a share of the produce. The actual share, however, varies from tract to tract.

By the Tenancy Act of 1950, occupancy tenants paying no rents have been declared full owners without compensation and tenants paying rent in cash have been made owners on payments of 10 times the rent. By an Act of 1952, occupancy tenants paying rent in kind have been made owners of a part of their holding in proportion of their share of the produce. Some measure of security has been given to tenants-at-will.

Jagirs except Military jagirs have been abolished.

BALUCHISTAN.

The rights of tenants in Baluchistan are not regulated and the tenants are as unproductive as the Sind Haris. The rent is usually paid as a share of the produce and varies from tract to tract.

EAST BENGAL

East Bengal has a total area of about 54,000 Sq. miles and a cultivated area of 34 million acres. The bulk of the land is permanently settled.

The intermediaries in East Bengal have been abolished by the East Bengal State Acquisition and Tenancy Act, 1950 on payment of compensation on grade rates; 10 times the net income for an intermediary receiving rent upto Rs. 500 and twice the net income for an intermediary receiving more than Rs. 1 lakh. The compensation is payable in cash or in bonds, the bonds may be spread over 40 years. The debits of the intermediaries will also be scaled down in proportion of the reduction in their net income. The Act has been implemented only in a small part of the area. Notices have been issued for the acquisition of the 17 biggest Zamindaris.

After State acquisition, all tenants will have permanent, heritable and transferable interests but they will not be allowed to sublet their lands.

About 1/5th of the land is held by bargadars (share-croppers) who generally pay $\frac{1}{2}$ of the produce as rent. No action appears to have been taken to confer security of tenure upon them or to fix fair rents.

PHILLIPINES

The Republic of Phillipines has land area of approximately 30 million hectares of which 5.7 million is classified as palm land, 3.7 million is actually under cultivation. Rice is the predominant crop covering about 1.7 million hectares.

Of the total population of 21 million, about 75 per cent. live in rural areas. 1.7 million is the total number of farmers of whom about 52 per cent. are full owners, about 10 per cent. are part-owners and about 37 per cent. are tenants. Farmer-owners cultivate 60 per cent. of the farm lands, part-owners 8 per cent. and tenants 27 per cent. and farm-managers 5 per cent. The percentage of tenancy has been increasing and it is now estimated to be about 42 per cent. or about 1 million tenants. There is a province in which the tenancy percentage is 89 and in the main rice regions the average is about 55 per cent.

TENANCY CONDITIONS.

There are two systems of tenancy:—

(1) The share or 'Kasama' system in which the landlord is regarded as the manager and the tenant as a junior partner. The produce of the land is shared between the landlord and the tenant according to the contribution that they make towards the costs of cultivation;

(2) The lease hold system—tenants pays to the land owner as rental a fixed amount either in cash or in kind or both.

SETTLEMENTS ON LAND

Government have made attempts to relieve the pressure upon land already under cultivation by opening up new farms. This took the shape of Government purchase of landed estates and redistribution among tenants as well as the reclamation of new land. Altogether about 2 lakh hectares have been acquired by the Government and redistributed.

As regards settlement by reclamation—there has been a considerable movement of the population towards virgin public lands. The reclamation and occupation of uncultivated land is encouraged by the Government. The reclamation was, however, done on an unorganised basis. Subsequently the Government set up National Resettlement and Rehabilitation Administration in order to carry out resettlement on a planned basis. The necessary facilities are provided in these settlement areas. The expenditure incurred by the Administration in the form of permanent improvements such as roads, irrigation systems, or direct aid for subsistence of the settlers, the cost of acquiring the land etc. are payable by the settlers in 10 equal annual instalments without interest, beginning after the 3rd settlement year. The land itself, however, is given free of charge. Usually 6 to 8 hectares are given to a settler, the choice is made by lottery. The settler is not allowed to lease the land and the grant is liable to forfeiture if he fails to cultivate half the area assigned to him within 2 years.

TENANCY REFORMS.

Some measures to confer security of tenure and fair rents have been adopted. These measures, however, have generally been quite ineffective. According to the 1948 Census, about 57 per cent. of the tenants in the Central Plains area paid one-half the crop as rent. The law provides that the tenant is entitled to 70 per cent. of the produce in paddy lands. In actual effect, however, very few tenants have been able to take advantage of this provision. The security of tenure is also inadequate. The landlord can eject the tenant if he wants to cultivate the land himself or if he wants to take to mechanised farming. The question of agrarian reforms, is, however, under the active consideration of the Government.

THAILAND

Thailand has a total population of about 20 millions, with an average density of about 100 persons per square mile. 88 per cent. of the total population is engaged in agriculture.

About 58 per cent. of the total area is under forests, 18 per cent. under cultivation, about 24 per cent. is unclassified.

The average farm holding per family is about 12 acres, but in case of paddy lands it is about 7 acres.

A recent pilot farm management survey of 240 farms distributed throughout the country indicated that 73 per cent. of farm operators were full owners and only 4.6 per cent. were full tenants. In the more thickly populated parts of the country, however, considerable areas of land are held by tenants, varying from about 20 per cent. to about 60 per cent. of the land in these tracts. The tenants pay rent mostly in kind, the rate being approximately one third to one-half of the harvest. The tenant supplies his own animals and agricultural implements. A rental contract is drawn up usually for one year at a time. No compensation is allowed for the improvement or maintenance of land. No attempt has been made to confer security of tenure upon tenants or to reduce their rents.

CEYLON

Out of a total land area of 16.2 million acres inhabited by 8.0 million people, only a little more than 1/3rd (4.7 million acres) is under cultivation and occupation with the consequence that the peasantry in the thickly populated part of the country, mostly live in over-populated villages and exist by cultivation as owners or tenants of tiny holdings. This fact has led to unemployment, underemployment, chronic indebtedness, unsatisfactory credit facilities, high rates of interest for agricultural loans and use of old fashioned implements etc., resulting in low yields and acute poverty. At the same time as a result of the policy pursued by the British Government (in whom all forests, waste and unoccupied lands were presumed to be vested, of granting vast extents of lands upto 4,000 acres to an individual) in perpetuity to His Majesty's European subjects on very lenient terms and later selling them by auction during the 19th Century, Ceylon resulted in the development of a highly organised plantation industry largely owned by foreign capital employing immigrant foreign labour and growing tea, rubber and cocoanuts for exports.

This policy, while adding greatly to the prosperity of Ceylon and increasing the revenue of the Government caused hardships to the local peasantry of the island. All this led to acute controversy during 1920 with the Ceylonese peasants demanding a complete revision of Government's

Land Policy in order to safeguard their interests. In 1927, the Government appointed a Land Commission to examine the whole question of land reforms. The recommendations of the Commission were subsequently incorporated in the Land Development Ordinance of 1935 and it is now the basic law of Ceylon regarding the alienation of land for agricultural use. The new policy—

- (1) eliminated the sale of land by auction and substituted a mode of selection;
- (2) created a new form of restricted tenure (the occupant cannot transfer or lease his land, and is succeeded by only one nominated successor);
- (3) established the principle that the needs of local population must be met before alienation to any other category according to the following priorities:—
 - (a) for village expansion,
 - (b) for Middle-Class Ceylonese,
 - (c) for colonisation, and
 - (d) in areas where land in excess of the need of the above three categories are available to Capitalists and others.

During the last 20 years, as a result of the adoption of the new policy, the following extents of land have been alienated:—

- (1) 2.9 lakh acres as village expansion to 1.94 lakh peasants;
- (2) 1.1 lakh acres in colonisation scheme to 16.1 thousand persons;
- (3) 70.0 thousand acres to 5.9 thousand Middle-Class Ceylonese.

Little or no land has been alienated to capitalists or others for the development of commercial crops.

One dis-appointing feature of the land problem in Ceylon has been that while persons who acquired crown lands under the old auction system have considerably developed their lands, those who acquired the neighbouring lands under the easy terms of the new policy have not shown the same interest and enterprise in developing their allotments inspite of the Government's attempts

to assist such peasants by offering subsidies for the carrying out of soil conservation measures, construction of houses and wells and the supply of free plantation materials.

Lands alienated in colonisation schemes to peasants families who were moved from congested areas have been fully developed only on account of considerable capital expenditure incurred by the Government in the form of providing 5 acres of paddy land fully cleared, ridged and ready for cultivation and 3 acres of high land with a house costing Rs. 2700 (approximately £200) subsistence allowance for six months and free seed paddy for the first sowing of the crop etc.

The restricted tenure which was introduced as a result of the new policy has prevented new lands being leased, mortgaged or sold by the peasantry with the result that the peasants have been denied the opportunity of raising the credit necessary for the development of land on the security of their holding.

CONCLUSION.

The new Land Policy in Ceylon which aimed at a alienation of national lands to bring into existence a prosperous self-supporting and self-respecting multitude of peasant-proprietors, has not been very successful except in colonisation schemes where the Government has invested vast amounts of capital. The efficient use of land on the plantation where it had been acquired under the old auction system and developed with private capital as compared to the inefficient use of land on peasant and middle-class holding as a result of the new policy, has brought about considerable dis-satisfaction among the local peasants.

In the villages, considerable areas of land are held by tenants, who have no security of tenure and are rack-rented. No attempts have been made to confer occupancy rights upon the tenants. Recently a law was made giving them a minimum term of 5 years but its implementation has not been effective.

APPENDIX XVII

CONSTITUTION OF THE CANADIAN FEDERATION OF AGRICULTURE AMENDED UP TO JANUARY, 1949.

Article 1.—Name.

1. This organization shall be known as the Canadian Federation of Agriculture, hereinafter referred to as the "Federation".

Article 2.—Objects.

1. The objects of the Federation shall be:

- (a) To co-ordinate the efforts of Agricultural Producer Organizations throughout the dominion, for the purpose of promoting their common interest through collective action.
- (b) To promote and advance the social and economic conditions of, and to render such services to, those engaged in agricultural pursuits as conditions may justify.
- (c) To assist in formulating and promoting national agricultural policies to meet changing national and international economic conditions; and to collaborate and (or) co-operate with other organized groups of producers, within or without the British Empire, for the furtherance of the said objective.

Article 3.—Non-Political Status.

1. The Federation shall not be, nor become, a political organization, nor shall the Federation, or any Committee thereof, deal with any matter from a partizan view point. It shall be the duty of the Board of Directors at all times to preserve the non-partizan status of the Federation, and to give immediate attention to, and deal with as they see fit, any action by any officer or director which in their opinion is prejudicial to that status.

Article 4.—Head Office.

1. The Head Office of the Federation shall be situated at such place as the Board of Directors may from time to time decide.

Article 5.—Membership.

1. Membership in the Federation shall be open to:

- (a) One representative agricultural organization from each province or group of provinces in the Dominion, now known as Provincial or Regional Federations of Agriculture.
- (b) Where no Provincial Federation of Agriculture exists, any organized group of producers that is representative of any major agricultural interest of the province in which it is located, subject to the decision of the Board of Directors on this point.
- (c) Any interprovincial or national body, representing producers in a specific branch of agriculture, in the Dominion, which may establish its claim, in the opinion of the Board of Directors of the Federation, to be representative of primary producers engaged in that branch of agriculture: Provided, however that such interprovincial or national bodies shall be confined to one each of the following major branches of the industry, namely: grain, livestock, dairying, fruit and vegetables.

2. Applications for membership shall be made to the Secretary of the Federation and shall include such information concerning the applicant body as the Board of Directors may require.

3. Membership fees shall be paid quarterly in advance, on such basis as may be specified by the Board of Directors. Membership organizations which neglect to pay their dues in advance are liable to forfeiture of their rights to representation on the Board of Directors until all fees and arrears have been paid.

4. Member organizations may withdraw from the Federation at any time by notice in writing to the President or Secretary of the Federation but in the event of such withdrawal the organization shall remain liable for payment of the dues up to the end of the current year.

5. A member organization which fails to pay its dues, or which ceases to fulfil the conditions and functions under which its application for membership was granted, may be dropped from membership by a majority vote at any regular meeting of the Board.

Article 6.—Board of Directors.

1. The Board of Directors of the Federation shall be constituted as follows:

- (a) Each member unit representing a Province or group of provinces as provided in sub-section (a), Section 1, Article 5, shall have the right to nominate three (3) Directors.
- (b) Each Member Unit admitted to membership under sub-section (b), Section 1, Article 5, may have such representation on the Board of Directors as the Board may decide: provided that not more than three (3) Directors in all may be appointed within any province concerned.
- (c) Each inter-provincial or national organization admitted to membership under sub-section (c), Section 1, Article 5, shall have the right to nominate one (1) Director.
- (d) In the event that any member of the Board of Directors is also appointed to the position of Managing-Director of the Federation, the member unit or body which he represents as Director, shall be entitled to nominate an additional Director.
- (e) The National Committee of Farm Women, as provided for by the Board of Directors, shall be entitled to nominate two members to the Board, one from the Eastern Conference and one from the Western Conference.

2. Nominations for Directors, as provided above, shall be made in each succeeding year, and placed in the hands of the Secretary of the Federation prior to the Annual Meeting. At the final session of the Annual Meeting, the Board of Directors for the ensuing year shall be elected and shall assume office immediately.

3. The term of office of Directors shall be one year, or until such time as their successors are elected.

4. In the event of a vacancy occurring in the Board of Directors, during the year, the Member Unit concerned shall, at the earliest possible date, nominate a new director to fill the vacancy, and so advise the Secretary of the Federation, who shall submit the nomination to the next succeeding meeting of the Board of Directors for approval or otherwise. The term of office of the Director so appointed shall be the balance of the term of the Director being replaced.

5. Each member unit shall have the right to name a substitute to attend and act in the place of any of its regularly appointed Directors at any meeting of the Board, but such substitute shall not be eligible for office.

6. *Powers of the Board.*—The Board of Directors shall have the Management and regulation of all business of the Federation and the supervision and direction of all officers and employees, including the right of appointment and dismissal of such officers and employees.

7. The Board of Directors may delegate any or all of its powers to any committee of its members, with full power to act and may require any person who receives or has control of property or funds of the Federation, to furnish suitable bonds. Unless otherwise provided, between meetings of the Board of Directors, the Executive Committee shall have the full powers of the Board of Directors.

Article 7.—Officers and Executive Committee.

1. Immediately upon their election, the Board of Directors for the ensuing year shall meet and elect from among the Directors, the Officers and Executive Committee. There shall be a President, a First and Second Vice-President, and these three officers, together with not more than nine (9) other Directors, shall constitute the Executive Committee: Provided, however, that of the said nine (9) Executive members not more than three (3) shall represent organizations admitted to membership pursuant to subsection (c) of Section 1, of Article 5, of the Constitution.

2. Each member organization represented on the Executive Committee shall have the right to appoint one of their other Directors as an alternate if and when it is found necessary to do so.

3. The Board of Directors may appoint a Managing-Director who may be a full-time officer of the Federation.

4. The Board shall appoint a Secretary who shall be a full-time officer of the Federation; and a Treasurer who may or may not be a full-time officer of the Federation; or they may combine the offices of Secretary and Treasurer when it is expedient to do so. The Secretary and Treasurer, or the Secretary-Treasurer, may or may not be members of the Board of Directors.

Article 8.—Meetings.

1. Meetings of the Federation shall be held as follows:

- (a) An annual general meeting of the Federation shall be held at such time and place as the Board of Directors may determine, to receive reports of officers and committees, to elect officers for the ensuing year, to consider resolutions from member bodies and for all other general or special purposes relating to the affairs of the Federation.
- (b) Special general meetings of the Federation may be held upon the call of the President, the Executive Committee, or upon the requisition of ten (10) Directors, upon giving the usual notice, or upon shorter notice if at least three-quarters of the Board of Directors approve; the purpose for which the meeting is being called shall be specified in the notice calling the meeting.
- (c) The Secretary shall give not less than 30 days' notice in writing to each member organization of the date and place of all annual and special meetings of the Federation.
- (d) Delegates entitled to vote at all annual general meetings or at special general meetings of the Federation, shall be the members of the Board of Directors, or substitutes duly nominated in accordance with Article 5 of the Constitution.
- (e) All individual members of the member bodies of the Federation shall have the right to attend annual or special meetings of the Federation, and participate in the discussions, but shall not

have the right to vote unless accredited as Directors, or Substitute Directors.

2. Meetings of the Board of Directors shall be held as follows:

- (a) There shall be a meeting of the Board of Directors at the close of each annual meeting of the Federation. At this meeting such business as may be necessary to the initiation of the ensuing year's work of the national office shall be dealt with.
- (b) Other meetings of the Board of Directors may be held during the year at such time and places as the President may decide: provided that at least two weeks' notice has been given; or if called on shorter notice provided that all Directors agree.
- (c) At all meetings of the Board of Directors a quorum shall consist of one-third of those entitled to attend.

3. Meeting of the Executive Committee may be held at such times and places as the President deems advisable:

- (a) Provided that at least two weeks' notice of such meetings has been given by the President, or if called on shorter notice, provided that all members agree.
- (b) At any such meetings of the Executive Committee a quorum shall consist of a majority of those entitled to attend.

4. At any meeting of the Federation or of the Board of Directors or of the Executive Committee, the President, when also holding the position of Managing-Director of the Federation, shall not exercise his vote except when necessary to break a tie.

5. All meetings of the Federation, or any Committee thereof, shall be subject to the ordinary rules of debate, according to the type of meeting.

6. The President may invite, at his discretion, representatives of other organizations, or other persons, to attend annual or special meetings of the Federation, or meetings of the Board of Directors, or of the Executive Committee.

Article 9.—Duties of Member Organizations.

1. Each member organization shall forward to the Federation, without undue delay:

- (a) A copy of its constitution and important amendments thereto as these may be made from time to time.
- (b) A copy of its annual report and financial statement.
- (c) A copy of all resolutions passed by it concerning matters of inter-provincial or national importance to agriculture.

Article 10.—Duties of Officers, etc.

1. *President.*—The President shall exercise all the duties usually pertaining to such office. He shall preside at all meetings of the Federation and of the Executive Committee. In his absence his duties shall be assumed by the First or Second Vice-President, or in their absence, by such person as the meeting concerned may elect.

2. *Managing-Director.*—The Managing-Director shall be responsible to the Board of Directors. He shall have general direction of the activities of the national office, and shall have full authority and responsibility in the carrying out of the policies of the Federation as set forth from time to time by the Board of Directors, and for making of decisions in respect to these policies in the course of his duties. He shall report at each meeting of the Board of Directors upon the work of the national office, and respecting action taken on policies and recommendations of the Federation. In the event that there is no Managing-Director the Board of Directors shall designate the official who is to carry on the duties of the Managing-Director.

3. *Secretary.*—The Secretary shall be responsible to the Managing-Director, and through him to the Board of Directors. He shall perform all the duties usually pertaining to the office of Secretary, and, next to the Managing-Director, shall be responsible for the activities of the national office. He shall also perform such other duties as may be prescribed from time to time by the Managing-Director or the Board of Directors. He shall attend and keep accurate record of all proceedings of the annual meet-

ings of the Federations and of the Executive and Board of Directors.

4. *Treasurer*.—The Treasurer shall have the charge and custody of all funds of the Federation and shall deposit all funds received on behalf of the Federation, in a chartered bank in the name of the Federation. He shall keep an accurate statement of the receipts and disbursements and shall make a full and detailed report thereof, together with an accurate statement of the financial affairs of the Federation to the annual meeting. He shall render to the Board of Directors full reports with respect to the finances of the Federation, as the Directors or President may require. The books and records of the Treasurer shall be open at all times to the inspection and examination of the Directors or their duly accredited representatives. The Directors shall bond the Treasurer for such an amount as they may determine.

5. *Auditor*.—An auditor shall be appointed by the Board who shall have access at all times to all financial books and records of the Federation and present an annual financial statement to the Board of Directors, in such form as they may direct, which statement shall disclose the financial position of the Federation.

6. *Fiscal Year*.—The Fiscal Year of the Federation shall be the Calendar Year.

Article 11.—Section 1—Amendments to the Constitution.

1. Amendments to this constitution may be made by notice of motion for the introduction of a resolution covering such amendments, said notice or motion to be in the hands of the Secretary not less than thirty days prior to any annual meeting of the Board of Directors at which such resolution is to be acted upon, and such amendment shall become effective by a majority vote of the Board at such annual meeting.

APPENDIX XVIII

Significance of Agricultural week and Farmer's Organization

India is mainly an Agricultural country. The bulk of her population lives in villages and Agriculture is their mainstay and chief source of their livelihood. Any attempt made therefore, to organise the farmers in the country for their betterment, is not only essential, but has become urgent. For the first time, therefore, in the history of this country an humble beginning is made to celebrate an "AGRICULTURAL WEEK" under the guiding inspiration of Dr. P. S. Deshmukh, the Union Minister for Agriculture.

No books or leaflets can replace the personal discussions and observations in such an organisation. The spirit of the organisation will, therefore be always towards rural civilization on scientific lines and democratic principles. This will be purely farmers' organization with programme running for a week or more at their convenience. Farmers, with meagre resources cannot organise themselves into co-operatives. They require a forum therefore to discuss their problems. This will be the agency through which their social and economic beings are to be rehabilitated.

This body should have freedom to adjust itself to local needs and conditions which will be its greatest strength to be effective in its functions. The farmers hitherto unorganised will readily respond to an incentive from themselves. It will have collective enthusiasm and great social influence.

In short, the main objectives should be:

- (1) A drive to lift cultural standards;
- (2) Encourage contacts among themselves;
- (3) To build up a common forum to discuss and solve their problems;
- (4) Transformation of the society as a whole to the ideal of the welfare state;
- (5) To assign due dignity to farm life;

- (6) To organise educational and informative trips wherever possible;
- (7) Inter-state contacts with similar organisations;

This will result in:

- (a) Developing talents leading to greater and greater usefulness;
- (b) Joining with fellow farmers for work recreation and citizenship;
- (c) Better understanding of adjustment according to changing times;
- (d) Creating better homes for better living;
- (e) Building health and resources for a stronger India;
- (f) Sharing responsibilities for mutual progress;
- (g) Co-operation and co-operatives.

The significance of the Agricultural Week to strengthen the Farmers' Organisation:

This must be a great occasion for farmers to meet and celebrate this week and take credit for what they have been doing all the year round in the matter of providing food and other necessities of life for the community. They are entitled to attention because although they form more than seventy per cent of the population, their contribution to the social welfare passes sometimes unacknowledged.

Engaged as they are in their own labours all the year round, they have no time to organise themselves and exchange views with one another and make their voices heard. There may be conferences and meetings for this or that purpose organised by partisans or officially sponsored exhibitions and farm days occasionally but they do not give the farmers an opportunity to discuss purely farm problems. On most occasions they would probably be talked at instead of being allowed to talk.

In a word, there are few, if any, opportunities for the farmers to meet in a conscious and corporate body to consider matters of common interest to them. Such meetings are held by other groups like planters, traders and others but hitherto there has been no common occasion for farmers to meet. It is to provide such an opportunity that Union Minister for Agriculture suggested the organisation of an agricultural week so that the ordinary farmers engaged in

a useful occupation may rediscover their personality and importance in the scheme of things. The idea of the Agricultural Week is not to provide an occasion to catalogue wants and needs or look with regret on the difficulties and mishaps met with during the course of the year in their occupation which is almost a daily adventure and a daily hazard. It is on the other hand to provide an occasion for comparing notes and meeting friends and to have a spot of good cheer.

Rural life is now a days becoming more and more urbanised and farmers toiling day in and day out have no chances of meeting other farmers either in their own village or outside it. Rural festivities are becoming more and more attenuated and farmers have no opportunity to realise the ordinary joys of life. It is on such considerations that the idea was worked out and an appeal issued for the celebration of the Agricultural Week in a convenient month, in every village and hamlet.

Bigger meetings may be organised in a few important centres in the districts and these meetings will provide an opportunity to the farmers to meet not only their brother farmers but also officials of the nation-building departments like Agriculture, Animal Husbandry and National Extension service who will meet them not in a spirit of official superiority but as friends. The gatherings will be purely informal and the farmers will discuss their problems freely and frankly and organise entertainments and shows for the benefit of themselves and their families. Cattle shows will also be organised in conjunction with these celebrations as farmers love their livestock which toil with them as much as their own children.

The organisation of the Agricultural Week is entirely in the hands of the local agriculturists; and officers of the Government will only be in the background and give them all encouragement and help. The whole idea is to provide a congenial atmosphere for the farmers to stress the importance of agriculture and live-stock, and the part played by farmers in the national economy and bring back to life the traditional festivities of the harvest season which are nearly dying out.

Farmers will meet on this occasion without any distinction of being big or small or whether they are farm-hands or servants. They will all meet together as a happy family and as a corporate group in their own village halls

or chavadis and at the bigger meetings. Folk songs can be sung and fruits and sweets can be distributed and Farm animals can be exhibited and prizes awarded. Women and children particularly who too assist in the work of the head of the family unlike town-breds should join in these festivities.

Our farmers are probably the best in the world, hard-working, courageous in the face of calamities and maintaining the lofty 'dharma' of their occupation. They are the axle pin in the great chariot of society and yet they are the most anonymous set of persons, toiling patiently and dutifully for the welfare of the Nation. This week is therefore to bring good cheer and goodwill to them.

Such celebrations are not new either in this country or elsewhere. Farmers Federations in the United States of America are important organisations in the life of that country. The American Farm Bureau Federation is one of the well-organised establishments of the world. It has got a nation-wide membership of a million and a half. The farm bureau families have accomplished much for their betterment and for the betterment of American agriculture and have exerted a healthy influence on farm problems.

Members of the Farm do not look to the Farm Bureau to do something for them but they regard the organisation as a means by which they can accomplish things in co-operation with their neighbours and with other farmers throughout the nation. It is said to be the voice of agriculture in America and it has brought about a new philosophy of their national well-being.

In Canada too there are similar farm organisations and it appears that once a year the farmers have the privilege of meeting the Prime Minister of Canada. These farmers' organisations contribute to the growing stature of their Nations by fulfilling their role in the national life by striving tirelessly to increase production in their farms.

The 4 H Club in these countries provide meeting ground for social amenities for the farm families. In Britain too farmers festivities are a part of the national life. Farmers' days organised by County Farm Institutes are eagerly looked forward to by farmers and rural festivities and merriments are prominent features of these celebrations. The subdued romance of farm life, its simple joys, its creative work, its love of farm animals find expression

in literature containing many passages extolling the nobility of farmers, their magnanimity and self-sacrifice. Even in the present day literature the farm life is an attractive theme for novels, short-stories, ballads and films. There is no country in the world which does not apotheosise the farmers.

Farmers are supposed to be traditionally pessimistic. True, we do not find in them the optimism among traders, lawyers and such other people. Farmers are grimly conscious that the result of all their labours is unpredictable. All the time, it is a fight for them against pest and diseases of crops, see-sawing of prices, the disreputable uncertainty of the weather. There is not another job or profession where intelligence and foresight and planning are so nakedly exposed to uncontrollable factors. Persons who brave these odds are surely not pessimists. There are two reasons why men farm at all inspite of all these. They are, first, love of the land for its own sake and second the honourable independence of their occupation. Perhaps there is another spiritual consolation also, for the man on the land knows that he is the King-pin of the concern, and that if he were withdrawn, the whole gallimaufry with its businessmen and politicians and entertainers and play wrights and editors and buglers and poets and industrialists would fall to bits.

Farmers are also frequently spoken of as conservative and even obstinate. Napoleon said that toil produced a hard and virile people while trade produced soft and crafty people. The farmer is accustomed to the habit of making daily decisions in his work and this engenders a spirit of independence of mind and judgment often mistaken for obstinacy. Fundamental processes of farming are governed by Nature's laws and not by their own and so farmers cannot change their methods rapidly without taking impossible risks. This cannot be called conservatism. It must be remembered that a farmer is neither a gardener paid to keep the landscape according to the master's wish nor a public servant to till the nation's land, but a plain man seeking to get his living with his own means and resources.

Farmers have no time to explain themselves to the public but among themselves they more readily understand and agree. Hence it is that opportunities for farmers to meet occasionally should be useful to themselves and to

others who wish to be of help to them. The Agricultural Week now proposed to be organised should therefore be welcomed as a forum for farmers to express their views and suggestions for the benefit of brother farmers and also of the Nation.

To stress the all-India importance of the Week, a big gathering of farmers should be called. Farmers, stock breeders and friends from far and near should be welcome to this meeting. It would be a mixed company of grain farmers, fruit and commercial crop growers, cattle and sheep breeders, poultry farmers, agricultural artisans, agricultural and animal husbandry experts. The meeting may be addressed by the Prime Minister or the Union Minister for Agriculture and presided over by the Krishi Pandit and addressed also by number of prominent agriculturists. There can be a cattle show and film exhibition and entertainments in connection with the meeting. The meeting should be informal in character and should provide an opportunity for farmers of many States to meet fraternally.

It may be the forerunner of the formation of Farmers forums and States Organisations of farmers for the Republic of India. This would be a unique meeting with very great significance, namely, to spread good cheer and goodwill. May its message spread and may it lead to greater prosperity of the farm people throughout our great country.

APPENDIX XIX

COPY OF D.O. LETTERS No. 7499-AGR.—54/24 (CH) & DM—55/266 DATED 6TH JANUARY, AND 21ST JANUARY, 1955, FROM SHRI PARTAP SINGH KAIRON, DEVELOPMENT MINISTER, PUNJAB, TO DR. P. S. DESHMUKH, UNION MINISTER FOR AGRICULTURE.

This is in continuation of my previous D.O. letter of last month.

2. *Maize and inter cropping of soyabean.*—Maize is a very important crop in the Kangra district. It is the staple food for the people of this district especially during the winter months. Unfortunately maize alone being low in protein contents does not provide a balanced diet. In order to improve its dietetic value, proteins have to be supplemented from other sources. With this object in view, efforts were made to grow soyabean a leguminous crop as inter crop in maize. It has been found that the yield of maize grown with soyabean has been invariably higher than maize sown alone, with an extra production of soyabean from the same area. This leads to the conclusion that the extra production by inter cropping of soyabean in between the rows of maize is the outcome of two additional advantages *viz.* (i) soyabean grown in between rows of maize keeps down the weeds which otherwise deprive the soil of plant food and (ii) replenishes the soil fertility by fixing atmospheric nitrogen through its nodules on account of its legume nature. In view of these facts, growing of soyabean in between the rows of maize can be safely recommended in the hilly area where soyabean has done well. This will not only increase the production but will enrich the diet of the people. Punjab soyabean No. 1 is found to be a suitable variety for growing as inter crop in maize.

3. *Double row planting of potatoes.*—The present system of planting potatoes is in a single row of $1\frac{1}{2}$ ' to 2' from the centre of one ridge to the other. As a distance of $1\frac{1}{2}$ ' is very inconvenient for workers and only a small quantity of earth is available for earthing up the ridges, generally the ridges are made 2' apart. This, however, reduces the number of plants per acre and obviously results in low yields. To remove these difficulties double row planting system has been adopted. It involves the planting of

potatoes seed tubers at a depth of one inch from the soil surface in two rows 6" apart on the site of a ridge. In the middle of this row a band of fertilizers is placed about an inch deeper than the seed. Similar bands of fertilizers are placed at a distance of 2" on outer sides of these seed rows in a ridge. The seed and the fertilizer are subsequently covered by earth by 2" to 3" layer of earth taken from the sides of the marginal bands of fertilizers to make one ridge over two rows of seeds potatoes. Such double rows are planted at distance of $2\frac{1}{4}'$ to $2\frac{1}{2}'$ from each other. This method thus enables the growers to get two rows in a space of $2\frac{1}{4}'$ to $2\frac{1}{2}'$, increases the number of plants per acre and facilitates cultural practices. This method of planting has also proved useful in economising irrigation water, labour in hoeing, earthing up and harvesting of the crop as there is a lesser number of ridges to handle than under usual system. The ridges being high and water at the top, there is little chance for the irrigation water to submerge the ridges thereby affecting germination and yield adversely. The loose soil in the ridges also provides a great scope for the development of tubers in it. As a result of these advantages the potato growers stand to increase their return from potato cultivation. This improved practice has evoked considerable interest among potato growers in the Punjab and is getting popular. The potato growers in other States may also try the practice to their advantage.

4. *Effect of different fungicidal dusts on the germination of groundnut seed.*—There are a number of seed-borne and soil-borne fungi which considerably reduce the germination of seed groundnut resulting in poor crop. In order to find out which of the fungicidal dusts is the best, a trial with 8 fungicides was arranged. The results are given below:—

S. No.	Name of the fungicidal dust.	Percentage germination.
1.	Agrosan G. N.	91 9
2.	Tillex.	90 7
3.	Cereesan.	88 7
4.	Yellow cuprocide.	84 4
5.	Copper sulphate (An-hydrous).	82 2
6.	Copper carbonate.	83 8
7.	T. B. 4452 b.	72 7
8.	Tritisan.	78 5
9.	Control.	78 7

From the observations given above it is evident that Agrosan G.N., Tillex and Cereesan have enhanced the germination capacity of seed groundnut appreciably by 10

to 13 per cent. No adverse effect of these fungicides has been noticed on the subsequent growth of the groundnut plants. The use of these fungicides is recommended to improve the germination and stand of groundnut crop. Groundnut seed treated with ceresan controlled the collar-rot and wilt of groundnut in a remarkable manner. Any of three fungicides referred to above may be used to treat the groundnut seed before sowing at the rate of one part of the fungicide per 400 parts of the seed. Treatment may be done in a special seed-mixer or by shaking seeds with the fungicidal dust for about 5 minutes in any closed vessel.

5. *Factors affecting the interval between parturition and the first oestrus.*—This point was studied at the Government Livestock Farm, Hissar, on Hariāna cows. The main object of the study was to find out if the control over the factors i.e. season, milk yield, age and lactation supposed to influence the period between parturition and first oestrus of cows could be of value in curtailing the calving interval which may prove of economic importance to the cattle breeders of the country. The study was made on all the normal parturitions recorded for seven years. The average interval for all cows with normal gestation period was 217.0 plus 4.89 days. For the 395 parturitions studied 12.9 per cent. came in heat within 89 days after calving 25.7 per cent. between 90 to 179 days, 27.7 per cent. between 180 to 269 days, 25.5 per cent. between 270 to 359 days and 8.2 per cent. over 360 days.

From the above it can be safely concluded that where the first oestrus in an animal did not occur until a lapse of about 217 days following parturition, some sort of physiological abnormality of the reproductive system should be suspected and proper examination done.

COPY OF LETTER No. DM-55/266 DATED THE 21ST JANUARY, 1955, FROM SHRI PARTAP SINGH MINISTER FOR DEVELOPMENT, PUNJAB, CHANDIGARH, TO DR. PANJABRAO DESHMUKH, UNION MINISTER FOR AGRICULTURE, NEW DELHI.

Kindly refer to my demi-official letter No. 7499-Agr.-54/24(Ch), dated the 6th January, 1955.

2. *Effect of Ammonium Sulphate on cotton crop in Hariāna Tract of the Punjab.*—The Hariāna tract, comprising districts of Hissar, Rohtak, Karnal and Gurgaon, grows about 1.25 lakh acres of cotton every year. With the evolution of Punjab American cotton (216F) which now

constitutes about 70 per cent. cotton crop of this region, Haryana tract has become one of the important long-staple cotton growing zones of the State. Numerous agronomical experiments conducted under the Cotton Manurial Scheme have indicated that there is a progressive increase in yield of kapas with increasing doses of Ammonium Sulphate upto a dose of 125 lbs. nitrogen per acre under Hansi conditions. In order to confirm this finding, simple experiments were laid during kharif 1954 at seven different places in Hissar District on the cultivators' fields. Almost identical results were obtained at all the places. The summarised data is given below:—

Doses of nitrogen per acre (lbs.)	Average yield of kapas per acre (mds.)	Increase in yield over control.	% age increase in yield over control.
10 (control)	7.2		
2.25	9.1	1.9	26.4
3.50	11.1	3.9	54.2
4.75	13.9	6.7	93.1
5.100	14.6	7.4	102.8
6.125	15.5	8.3	115.3

The results show that although there is an increase in yield with higher doses of nitrogen in all cases under the Zamindara conditions, the increase in yield of kapas with doses over 75 lbs. of nitrogen per acre is negligible and is not likely to pay the additional cost of manure. Application of upto 75 lbs. of nitrogen (4½ mds. of Ammonium Sulphate) can be safely recommended to the cultivators of Haryana tract and this is expected to give the cultivators almost double the yield of control.

3. *Contagious abortion of the cows.*—It has been found unnecessary to wait for three weeks in order to diagnose cases of contagious abortion by agglutination test of their blood sera. The result of second day test has agreed with that of all 21 days after in 114 out of 115 cases of abortion. It is, therefore, recommended that all cases of abortion in livestock should be subjected to agglutination test as a routine practice on the second day after abortion and negative cases only should be retested 21st days following abortion. This practice will save from the practical difficulties of segregating an aborted cow for three weeks.

APPENDIX XX

COPY OF D. O. No. MA. 179-11320-XGMF DATED THE 10TH JANUARY 1955 FROM SHRI S. L. TIWARI, MINISTER FOR AGRICULTURE, MADHYA PRADESH TO DR. P. S. DESHMUKH, UNION MINISTER OF AGRICULTURE.

"In continuation of my D.O. Letter No. M.A./437/A/54, dated the 13th December 1954 sent to you in reply to your Circular Letter, dated 6th November 1954, I would like to deal with some of the salient points mentioned therein and those relating to the State. As already observed in my D.O. letter referred to above, the Report by M. B. Ghatge, Joint Director of Agriculture (Extension) Bombay State on his study tour to U.S.A. and Japan (vide appendix VI) has been found very interesting and useful. The question of stepping up food production and development of social and economic condition of the farmers in this State in the light of the observations made in the Report is engaging the attention of this Government. With a view to facilitate detailed examination of the Report, I have already requested you to send five spare copies thereof.

2. As you are aware, this State has recently experienced a tremendous attack of locust swarms. I enclose for your information a Note prepared by the Director of Agriculture, of this State, indicating the steps taken by this Government to ward off this great evil. (Vide Appendix I). In brief, I am glad to inform you that owing to the arduous efforts made not only by the Government officials including the Government of India officers deputed for the purpose, but also by the public in the affected areas, this Government could meet with the situation successfully and during a period of about a month, the locust-swarm was wiped out.

3. I am sure; you will be interested to know the areas and the yield of food crops in this State as in 1953-54. The following table gives in a nut-shell the area and the yield

of the staple food crops of this State during 1952-53 and 1953-54:—

Name of crop	Area under crop in '000' acres.		Yield in '000' tons.	
	During 1952-53	During 1953-54	During 1952-53	During 1953-54.
(i) Rice . . .	8964.7	9038.0	2611.5	2661.5
(ii) Wheat . .	2720 1	2733.8	564 7	584 1
(iii) Juar . .	4413 9	4441 2	1078.8	1288 1

4. As regards the constitution of Farmers' Organisation at the State level, suggested in para. 40 of your Circular Letter under reference, I would like to point out that the State Government have from the year 1950 constituted the State Board of Agriculture. A copy of Rules regulating the constitution and functions of the State Board of Agriculture, Madhya Praesh, is appended. (Vide Appendix II). It will be seen therefrom that non-official element is represented on the Board by 30 members who are leading farmers in this State. Besides this, some leading agriculturists are also appointed on Agricultural Research Committee which has been formed and is functioning in this State since November 1953, as per recommendations of the Madhya Pradesh Agricultural Policy Committee. In view of this, constitution of a separate organization of farmers at the State level does not seem necessary.

5. As regards the development of Co-operative movement in this State, the M.P. Co-operative Marketing Society, Ltd., Nagpur, has been established as far back as in the year 1948. A note on the activities of the above mentioned Society is appended for your information. (Vide Appendix III). With a view to associate the co-operatives more and more with the purchase and sale of agricultural commodities, the work of cotton pool has *inter alia* been completely entrusted to the Madhya Pradesh Co-operative Marketing Society, Nagpur. Besides this, the question of establishing a central co-operative Council is also under the consideration of the State Government."

ENCLOSURE (1) to App. XX

Anti Locust operations in Madhya Pradesh

A very big locust swarm (over 20 sq. miles) entered the Chhindwara district about the 23rd of October 1954. It was found some where near about Sausar and the anti-locust squad was sent immediately to the spot along with the Entomologist. The Deputy Commissioner, Chhindwara, himself took charge of the operations and when after four

days of fighting the swarm it was found that the swarm could not be tackled on account of its enormous size by the meagre staff under the Entomologist, additional help was requisitioned and the operations were put almost on a war footing. These operations have been watched personally by all the top officers as well as the Minister of Agriculture himself. An aeroplane was requisitioned from the Government of India and aerial spraying with Aldrin was commenced. There being no landing strip near about the spot where the swarm was located, the aeroplane had to take off from Nagpur and cover a distance of about 50 to 80 miles to reach the swarm. On some days only one trip could be made and sometimes two. The Government of India also sent two officers of their anti-locust organisation and under their directions spraying and dusting continued every night with very good results. This very swarm moved towards Wardha District where also the operations have been continued. The movement of the swarm towards Wardha District brought it near to the aerodrome at Nagpur and as a result, it was possible on many days to carry out four or even five aerial operations in the morning before the swarm flew off in another direction. Flame throwers, power sprayers and hand dusters were all used on almost every day with the result that the swarm was so much thinned out that it was expected to be exterminated very shortly. The pressure on the staff was increased on account of a second swarm which appeared all of a sudden in the Bilaspur district and moved towards Raipur and Durg districts. The equipment at Raipur was certainly not adequate to meet the situation because this swarm had split into four small swarms which flew in four different directions. The difficulty about locating the swarm in its day to day movement was also felt and many times traces of the swarm are lost altogether. Out of the four swarms into which this swarm had divided, two were not traceable. Either they merged in the original swarm or they disappeared into inaccessible forest areas of the Durg District.

2. Flame throwers and hand dusters are quite successful when the swarm is resting on low trees, but on high trees, the flame throwers is not effective. In such cases, we were spraying the tree tops with power sprayers and Aldrin were freely used for this. The Deputy Commissioner, Raipur stated that the equipment was not adequate and therefore all the flame throwers and dusters in

other districts were ordered to be rushed to Raipur which will have about 15 to 20 flame throwers and a large number of hand dusters as well as two power dusters and one power sprayer. Our Entomologist, Dr. Gupta, told me on the telephone that it was not necessary to send the aircraft to Raipur and that he had succeeded in completely spraying with B.H.C. dust one of the swarms which had settled near village Tarenga which is about three miles from Bhatapara. Three-fourth of a ton of B.H.C. was dusted over an area of half a mile long and about half a mile wide. This dusting would destroy more than 80 per cent. of the swarm within a period of two days. It is true that the results of dusting operations are not immediately visible as compared to those of the flame throwers. The flame throwers are delicate contrivances and our experience has been that they often get out of order. Moreover, operations by means of flame throwers are very expensive and therefore under the advice of the Government of India experts who were accompanying the anti-locust squads both in Nagpur and Raipur, we were concentrating on dusting and spraying operations. All the flame throwers available are of course used every day. The Minister of Agriculture suggested that we might get more flame throwers from the adjoining States. I, therefore, contacted Dr. Lal, Director of Plant Protection at New Delhi, and requested him to lend us some flame throwers. He said that the Government of India did not use flame throwers in their anti-locust operations. They were using power sprayers and power and hand dusters and aeroplane because they found after years of experience that these are more effective, reliable and cheap than flame throwers. He also said that it would not be possible for us to get flame throwers from Rajasthan or Madhya Bharat as these States would be requiring their equipment at any time without a moment's notice. He advised that we continue spraying and dusting operations and concentrate on these. Shri Sikka, the Government of India officer who was at Nagpur also advised me not to try to borrow any flame throwers which he said often get out of order and may probably be unserviceable to us. He also said that the Chhindwara swarm which was hovering round about Nagpur had thinned down to such an extent that it had ceased to be a serious problem. Our Entomologist, Dr. Gupta, also said on the telephone to me that the equipment with him was quite sufficient to meet the situation at Raipur which according to him was under control. In

the circumstances, it was considered undesirable to borrow flame throwers from the adjoining States.

3. We were conducting these anti-locust operations according to the advice given to us by the Government of India officers who were deputed to assist us in fighting the swarm. These Government of India officers are of the opinion that the manner in which we have tackled the Chhindwara swarm is very creditable and has achieved remarkable results. Even they did not expect that we would be so successful in tackling the swarm. This is the first time in the history of the State that anti-locust operations have been carried on on such an extensive scale. We have learnt much from this campaign and the knowledge gained will be useful for the future. What is of the utmost importance is that we should have small landing strips (level hard ground) at as many convenient places as possible to enable the anti-locust plane to land and take off, so that more aerial operations may be carried out in one day. The swarm took south-west direction and entered the borders of Hyderabad on 24th November 1954. Thus, due to the untiring and hard work done by the Government officials as also by the public in the affected areas, the situation was met with successfully and such an unprecedented locust swarm was wiped out.

Enclosure (2) to App. XX

AGRICULTURE DEPARTMENT

Nagpur, the 29th August 1950

Rules regulating the Constitution and Functions of the State Board of Agriculture, Madhya Pradesh, are published below:—

Rules

1. *Title*.—The State Government in the Agriculture Department shall constitute a Board of Agriculture for the purpose mentioned hereafter. It will be referred to as the Board in these rules.

2. *Constitution*.—(A) The Board shall consist of a Chairman and 30 nominated members as follows:—

Minister for Agriculture—*Chairman*.

(B) The following officers shall be the *ex officio* members of the Board:—

(a) *Ex officio*.

(1) Deputy Minister, Agriculture.

(2) Director of Agriculture.

- (3) Director of Veterinary Services.
- (4) Director of Industries.
- (5) Chief Conservator of Forests.
- (6) Chief Engineer, Public Works Department.
- (7) Revenue Secretary.
- (8) Secretary, Public Works Department.
- (9) Secretary, Food and Civil Supplies.
- (10) Secretary, Co-operative Department.
- (11) Registrar, Co-operative Societies.
- (12) Secretary, Development and Planning Department.

(b) *Nominated.*

The following number of persons may be nominated from non-officials representing different tracts to be the members of the State Board of Agriculture:—

- (1) *Rice Tract*.—Bastar, Chanda, Rajpur, Drug Bhandara, Raigarh, Bilaspur, Surguja and Balaghat districts—Up to 10.
- (2) *Wheat Tract*.—Sagar, Jabalpur, Hoshangabad, Betul, Chindwara and Mandla district—Up to 10.
- (3) *Cotton-Juar Tract*.—Akola, Amravati, Buldana, Yeotmal, Wardha, Nimar and Nagpur districts.—Up to 10.

Thus the number of nominated members of the Board may be up to 30.

It shall be open to the Chairman of the Board to co-opt for the purpose of discussion but not of voting any officers of any other department having except knowledge, who, in his opinion are likely to be of use to the Board.

(c) The Secretary, Agriculture Department, will act as the Secretary of the Board.

3. All the nominated members shall be nominated by Government from amongst practical agriculturists of the various zones.

4. All the nominated members of the Board shall be appointed only for the life-time of the Legislative Assembly. Vacancies, as they occur, shall be filled by the authority making the original nomination and in the same manner.

5. *Functions.*—The functions and objects of the Board will be to advise Government on the steps it should take to—

- (a) Increase agricultural production and improve existing methods of agriculture and agricultural practices;
- (b) Improve the breed and health of cattle;
- (c) Educate agriculturists in modern and scientific methods of agriculture (cultivation);
- (d) Formulate and implement Grow More Food Schemes and Development Schemes of the Agriculture and Veterinary Departments;
- (e) Advise Government on all matters connected with the well-being of agriculturists and agricultural labourers; and
- (f) Any other subject generally connected with agriculture but not included above.

6. *Meetings and Agenda, etc.*—(a) For the purpose of dealing with questions affecting different tracts, the members nominated from that tract together with all *ex-officio* members shall constitute a sub-committee for that tract. The Chairman and the Secretary of the State Board shall be the Chairman and the Secretary of all the Tract Sub-Committees.

(b) Whenever the subjects concerning a particular tract are to be discussed, meeting of that sub-committee shall alone be called to discuss the same.

(c) The meeting of State Board will generally be held once a year unless it is otherwise necessary to call it earlier to discuss important and urgent questions affecting the state as a whole.

(d) Meetings of the Tract Sub-Committees or the State Board of Agriculture shall be summoned by the Secretary under the directions of the Chairman.

(e) The Tract Sub-Committees shall perform all the functions of the Board enumerated under rule 5 in respect of the questions that will come before them for discussion.

7. The date for a meeting shall be communicated to all the official and non-official members of the State Board or the sub-committees as the case may be at least a month in advance and members will be invited to make

suggestions as to subjects to be included in the agenda of the meeting.

8. Any member, official or non-official, of the State Board or sub-committee, can suggest a subject for inclusion in the agenda by informing the Secretary clear fifteen days before the proposed meeting.

9. The Secretary shall draw up the agenda with short notes thereon explaining the nature of each item of the business with the approval of the Chairman and circulate the same together with copies of any papers directed by the Chairman to be furnished to the members of the Board or the sub-committee as the case may be.

10. In the case the Chairman finds that, there are either no subjects or not many subjects or no important subjects for discussion and it is in his opinion not necessary to call the meeting of the Board or the sub-committee, he may order the postponement of the proposed meeting and intimation thereof shall be given to the members at least eight clear days before the proposed dates of the meeting intimated to them.

11. Decision on every item shall be taken by majority of votes. The *ex-officio* members may take part in the discussion on any item but shall not be eligible to vote.

12. Proceedings of every meeting of the Board or the sub-committee shall be recorded and be sent to the members by the Secretary as early after the meeting as possible.

13. At every meeting the proceedings of the immediately previous meeting shall be read out by the Secretary for approval of the Board. The Secretary shall submit to the Board or the sub-committee as the case may be a report for the information of members and their comments on the action taken on the decisions taken in the previous meeting.

14. All the proceedings of the sub-committees and the action taken on the decisions taken by such a sub-committee shall be placed before the State Board.

15. The meetings of the Board or the sub-committee may be extended beyond the time already fixed therefor if it so necessary to complete discussion on all the items of the agenda.

16. Any item not on the agenda may be permitted to be discussed with the approval of the Chairman if there is time for doing the same. The scheduled time shall not be extended for discussion of such items unless 75 per cent of the non-official members present consent to it.

17. All the nominated members of the Board of the sub-committee residing outside Nagpur shall be entitled to draw travelling allowances and also daily allowance for attending the meetings of the Board. Those members of the Board who are members of the Legislative Assembly will be entitled to travelling allowance as admissible under the Members of the Legislative Assembly's Travelling Allowance Rules and those members who are not members of the Legislative Assembly will be treated as second grade Government servants for the purpose of travelling allowance and will be entitled to daily allowance at Rs. 5 per day.

18. Members of the Board or the sub-committees who attend meeting should send their travelling allowance bills to the Director of Agriculture, Madhya Pradesh, for necessary action as early after the meeting as possible and generally not later than a month thereof.

19. The Director of Agriculture, Madhya Pradesh, will be a controlling officer in respect of the expenditure for travelling of non-official members of the Board or the sub-committees. A list of members who attended the meeting of the Board or the sub-committee shall be forwarded to him immediately after the meeting.

By order of the Governor, Madhya Pradesh,
S. P. MUSHRAN, Secy.

ENCLOSURE (3) TO APP. XX

NOTE ON THE ACTIVITIES OF THE MADHYA PRADESH COOPERATIVE MARKETING SOCIETY LTD., NAGPUR

The Madhya Pradesh Cooperative Marketing Society was registered on 15th August, 1948. Its activities can be classified under three categories as under:—

- (i) Marketing of Agricultural Produce.
- (ii) Distribution of Agricultural requirements and consumer goods.

- (iii) Management of superseded Cooperative trading institutions whenever ordered by the Registrar, Cooperative Societies, Madhya Pradesh.

I. The Marketing of agricultural produce has been undertaken by the Society in respect of the following commodities:—

- (1) Cotton.
- (2) Pulses and Oil seeds,
- (3) Rice milled in the Cooperative Rice Mills in the State,
- (4) Potato Seeds.

Cotton.—The Society is pooling, grading and marketing the improved varieties of cotton grown in the State. For this purpose, it has opened 31 centres spread all over the cotton zone. So far, the auctions of cotton pooled by the Society have fetched prices higher than those prevailing in the market by nearly Rs. 25 per khandi. The Society hopes to pool, during the season, nearly 40,000 khandies. If it succeeds, it will put in the pockets of these cotton growers Rs. 12,50,000 extra. This gives an idea of the extent to which the scheme is likely to benefit the cotton growers in the State. The State Government has stood a guarantee for a Reserve Bank concessional loan of Rs. 15 lakhs for advances to be made to cotton growers whose *kapas* is sold through the Cotton Pool. The Society has so far drawn Rs. 5 lakhs out of this loan and has made advances of Rs. 4.82 lakhs.

Pulses and Oil Seeds.—The Society is also marketing pulses and oil seeds of all kinds. It has invested nearly Rs. 2,00,000 in this business and in developing it built business contacts with the cooperatives in Madras, Bombay and Punjab States.

Rice and Potato Seeds etc.—There are 4 Rice Mills in the State. The Society helps them in marketing their rice. Similarly, it has supplied for the first time potato seeds imported from Bihar and Himachal Pradesh to the potato growers in the Northern Districts of the State.

II. *Distribution.*—*Fertilisers.*—The distribution of agricultural requirements and consumers goods is confined to fertilisers, Iron and Steel, Cement, Kharaghoda salt and

cloth. The Society was entrusted with the work of distribution of Sindri fertilisers in the State on 11th March, 1953. It has distributed about 17,000 tons of these fertilisers through its 457 centres spread all over the State for this purpose during 1953-54. The sales effected by the Society are a record figure for this State and come to nearly four times the annual average sales of these fertilisers during the past 4 years.

Iron and Steel, Cement, etc.—The distribution of Iron and Steel (agricultural quota) is done by the Society at Yeotmal, Sagar, Kamptee, Itarsi and Katni. It is the policy of the Society to give up gradually the distribution of controlled commodities and concentrate on the marketing of agricultural produce. In keeping with this policy, it has already given up sugar business. It has stopped dealing in other consumer goods also. Its distribution work will then be confined to fertilisers and agricultural implements.

III. The Registrar has entrusted the Society with the management of the Hoshangabad Tahsil Agricultural Association and the Nagpur District Leather Co-op. Society. The Marketing Society has since reorganised them and put their work on a satisfactory basis. Both the institutions are now earning profits.

IV. The Government has subscribed a share capital of Rs. 2.06 lakhs for the Society and another Rs. 2.23 lakhs have been raised from Central Banks and Agricultural Associations. In addition to this paid up share capital, the Society has so far been able to build up its own funds of about Rs. 3 lakhs.

APPENDIX XXI

EXTRACTS OF D.O. No. 153106 BIII/54-5, DATED THE 31ST JANUARY 1955 FROM SHRI M. BHAKTAVATSALAM, MINISTER FOR AGRICULTURE, FORT ST. GEORGE, MADRAS TO DR. P. S. DESHMUKH, MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA, NEW DELHI.

This month has been full of events. The most outstanding being the Congress Session at Avadi which discussed among other things, many socio-economic questions. The next in importance are the Prime-Minister's inauguration of the Golden Jubilee of the Madras Veterinary College and the opening of the Joint Session of the All India Veterinary Association and Madras Veterinary Association by yourself, the laying of the foundation stone for the open air theatre under the Youth Welfare Scheme by Sri Ajit Prasad Jain at the Veterinary College and last but not least, the inauguration by you of the State Farmer's Meeting at Tiruvellore which is a unique event and on the whole a complete success. The Tamil Nad Agricultural Conference at Villupuram, I am told, was not quite as impressive as the Tiruvellore Meeting. It is significant that the vocational and cultural aspects of his life appeal to the farmer more than anything else because he is shrewd, business-like and matter of fact. The idea of a State Farmer's Forum propounded by you has the general acceptance of the farmers and I expect it will very soon materialise. The resolution passed at the Avadi Congress stressing the importance of greater credit facilities to enable ryots to market their produce was most reassuring. Coming as it did closely following the recommendation of the All India Rural Credit Survey and the deliberations of the Standing Advisory Committee on Agricultural Credit of the Reserve Bank of India, it served to spot light one of the most crucial problems in the rural economy of the country. So long as agricultural credit is easy, smooth-going and favourable, any see-sawing of prices will not be damaging because ample credit will sustain production and give confidence to the producer that any temporary loss in prices could be evened out by a larger turnover. I am a firm believer in the potency of farm

credit which would neutralise to a great extent all other hazards of the agricultural enterprise and I would add that we in the South India who recently went through four years of drought eagerly look forward to the Government of India implementing the proposals for an agricultural credit stabilisation fund and for broad-basing agricultural credit so that it may be available to the smallest farmer in the country.

2. In your last letter you referred to the discussions which the Ministry of Agriculture had with Dr. Cardon, Director-General of the Food and Agricultural Organisation who seems to have suggested "selective production" in order to solve the problem of surpluses. I do not think that in the matter of food there is any question of selective expansion considering the rapidly increasing population in this country and the low living standard. In a large sub-continent like India, one part or the other of the country is always in the geography of hunger due to droughts, floods or pests. Over-production is therefore an insurance and guarantee against such calamities but the only problem that it might for a moment create is the falling of prices which might cut the ground under the feet of the farmer. Even in commercial produce, there is not likely to eventuate any large surpluses and the surplus production in sugar and jute are things of yesterday and are as easily forgotten as they sometimes develop. However, I am sure that our Planning Commission will take due note of our needs and resources in its recommendations for increased production in the Second Five-Year Plan without being much bothered as to how they would fit in the World agricultural economy.

3. In your letter you have mentioned two events of more than ordinary importance, viz. the Silver Jubilee of the Indian Council of Agricultural Research and the Fourth World Forestry Congress. The Silver Jubilee served to focus attention on the march of agricultural science in India and the possibilities of better living through research. Personally, I was rather disappointed to note that no munificent contributions came forward on that occasion from the industry or other sectors which thrive on the products of agriculture for expanding research activities of the Indian Council of Agricultural Research or for starting more Research Institutions in the country. Even after 25 years and in a free India, there has been none

to emulate the example of Mr. Henry Phipps whose munificence made it possible for the starting of the Pusa Institute. I hope that it would atleast be possible to institute more research studentships in agricultural research not only at the Indian Agricultural Research Institute but at the various Universities throughout the country to commemorate the Silver Jubilee. It is however gratifying to note that there has been one concrete result of the Silver Jubilee, viz. the permanent Agricultural Exhibition on which Rupees One lakh appears to have been spent. I am glad that it has been possible to send the Exhibition to participate in the Congress Exhibition at Trynampet at our suggestion and with our small cooperation in the matter of lending local staff to your Special Officer. It was gratifying that the Prime Minister was able to visit the Exhibition on the last day of his stay in Madras. In the summary of the proceedings of the Indian Council of Agricultural Research and connected Meetings which you have given in your letter, I notice that there is a small omission, viz. the unanimous decision to create a Rice Committee or Commission as a part of or an adjunct to the Indian Council of Agricultural Research. I regard this decision also as one in commemoration of the Silver Jubilee of the Indian Council of Agricultural Research. I do not know whether steps have already been taken to form this Rice Commission but I hope it will come into existence very soon so that it may be in full working order when the Rice Commission of the United Nations Organisation holds its session in India next year.

4. As regards the World Forestry Congress, I agree that it was an imposing and very useful session from which undoubtedly some benefits could be derived by us. We shall certainly take necessary action as soon as we get copies of the Summary Report of the Session which you have promised in your letter. I shall ask my Chief Conservator of Forests in the meantime to list out the recommendations which require consideration with reference to the conditions in this State and indicate the action that should be taken. The Chinese Delegation to the Congress visited the Nilgiris and Nilambur Forests between the 9th and 10th January. The Nilambur Forest as you might have observed during your visit on the 16th and 17th January is one of our best forests and as you remarked there are a number of encroachments which require looking into. The

method of treatment of timber advocated by the Silviculture Branch of the Forest Research Institute referred to in your last letter will be adopted in this State and instructions have been issued by the Chief Conservator to the State Silviculturist to initiate experiments in Nilambur, Coimbatore and Wynaad divisions. The State Wild Life Board constituted in pursuance of the recommendation of the Central Wild Life Board held its first Meeting on 11th January, 1955 under my Chairmanship and passed a number of resolutions on which action is being taken.

5. The World Forestry Congress reminds me of an announcement which I noticed in the newspapers that the World Meteorological Congress will also be held in India shortly. In a country where geographical factors are so varied and so largely interfere in agricultural activities and other spheres, I think this Meteorological Congress would also prove to be a momentous session. We should make the best use of it by asking the Congress to concentrate attention on various problems peculiar to this country. In particular we may ask them to give their opinion about the possibilities of artificial rain making on which opinion is divided.

6. The Agricultural situation which was rather dismal in December owing to the withholding of rains, improved in January. There was fairly widespread rainfall from 8th to 10th January and thereafter the weather was dry except for local showers in the Central and Southern Districts. These rains helped to revive the crops that were withering but they were on the whole definitely delayed and to that extent were less beneficial. Taking the North East Monsoon as a whole from October to December, it was on the whole unsatisfactory. Though the average was above normal in most districts, there were large deficits in particular periods. The deficit was specially marked in parts of Ramanathapuram and Madurai District and also in the West Coast. Water supply is still inadequate in these districts and in some places dry crops are reported to have withered. Pest attack on crops was reported from Chingleput, South Arcot, North Arcot, Tiruchirapalli, Tanjore and Ramanathapuram district. Remedial measures were taken promptly. The condition of crops on the whole was generally satisfactory.

7. The Japanese method as modified is undoubtedly popular and you drew attention to its advantages in your speech at Tiruvellore. In that speech you stated that Madras had not yet adopted a low seed rate and inter-spacing. I am afraid you are not quite correct in regard to the seed rate at any rate because Madras has been advocating lower seed rate and thin sowing for over two decades and they are now more or less universal practice. As regards spacing, there is difference of opinion. I enclose an extract from a note supplied by the Director of Agriculture on this point. I would like this point to be looked into again carefully by experts and authoritative opinion expressed. However, I have noticed during my tours that spacing is in fact being adopted by ryots in many places although they seem to have no idea at present as to what spacing is most beneficial. I believe it will vary from place to place according to the nature of the soil and the kinds of strain sown. I shall not attempt to express any final opinion on the matter as the matter is technical and must be borne out by actual experiments on the fields. I shall be glad to have experiments laid out and results assessed with different measurements of spacing.

8. In your last letter you referred to the utilisation of sewage and sludge for manure. A scheme for utilisation for sewage has already been implemented in this State by the Madurai Municipality. The Madras Corporation as you might know has also undertaken to implement a Scheme by using the City sewage for cultivating fodder, etc. The Annamalai University has also stated that a Scheme for using the University sewage is being implemented by them. In connection with the Madras Sewage Scheme, we are considering the question of organising a Milk Colony in conjunction with the Sewage Farm. We shall be addressing you in detail about the Scheme in due course. We have also forwarded a Scheme for starting a Dairy Farm by the Cooperation to the south of the City for financial assistance by the Government of India. I would request that the Government of India will come forward with grants and loans for these Schemes without delay as Madras has not put forward hitherto any Dairy Schemes when compared to Bombay and West Bengal.

9. Crop Competitions are being held in this State in respect of paddy, cumbu, cholam, and potatoes and prizes are being awarded by the firka, taluk, district, region and

state levels. Gram is not included as it is not an important pure crop in the State and is mostly cultivated as a mixed crop. The State Prize for the Paddy competition will be awarded by our Chief Minister at a ceremonial function on the 1st February, 1955.

10. The inauguration of the Golden Jubilee of the Madras Veterinary College by the Prime-Minister, the Veterinary Exhibition and other Conferences served to focus public attention on the useful functions of the Veterinary Departments and the needs of veterinary education which usually do not receive adequate attention. The Prime-Minister put forward an appeal for training adequate personnel for the Veterinary Services without sacrificing quality. He also touched upon the need for organising milk supply and referred to the Aarey and Haringatta Schemes. In your speech at the All India Veterinary Conference, you gave a forecast of the various Schemes which would be taken up by the Government of India in the next few years. For balanced agriculture livestock schemes should be considered as important as agricultural schemes and I am trying in all ways possible to co-ordinate the activities of the Agriculture and Animal Husbandry Departments.

11. Another innovation made this year is the organisation of a Departmental Conference of Veterinary Officers which was held in connection with the Golden Jubilee of the Veterinary College. A similar Conference of Agricultural officers is held annually at the Agricultural College and I thought that a Conference of Veterinary Officers would be useful for comparing notes and holding consultations on problems met with in the actual working of the Department. The conferences served a very useful purpose of clearing up many points.

12. The oil sardine fishing on the West Coast season was very satisfactory. The landings were good and the forecast of the Marine Biological Station that there would be a southern movement of the shoals and a bumper harvest proved correct. There was a heavier concentration of mackerels on the South Kanara coast. The inland fisheries which are in some respect more important are being expanded and currently we were faced with a phenomenon of dead fishes floating in a part of the Bhavani river. On investigation, this was found to be due to water pollution.

13. The Registrar of Cooperative Societies is working out details of proposals for the development of cooperative marketing of agriculture to be included in the next Five-Year Plan. The Scheme envisages the development of marketing activities by the increased facilities for warehousing, processing and sale of agricultural produce by financial assistance. It also contemplates the formation of marketing Federations for major agricultural produce in the State on a commodity basis. There are already four Marketing Federations in existence in the State which will also be brought within the scope of the Scheme. There is also a proposal for the establishment of a Cashewnut Factory on cooperative basis in the South Arcot District. The Registrar of Cooperative Societies also reports that two Land Colonisation Cooperative Societies are adopting the Japanese Method of cultivation and it is expected that all the colonists will adopt this method.

14. In your letter for September 1954 you made an observation that the average yield of American cotton in Pepsu and Punjab was .82 bale and .61 bale per acre respectively and that the yields in other States were very low and cited the low yield, i.e. .37 bale per acre for Cambodia Cotton in Madras as an example. I have had the matter checked up by the Director of Agriculture. In Madras State, Cambodia is grown in both irrigated and unirrigated condition and the total area under it is almost equally divided. Hence, it would not be a valid comparison if the overall yield per acre of Cambodia cotton is cited against the production per acre from a tract were 95% of the American Cotton is irrigated as in Punjab or Pepsu. Actually the yield in Madras of irrigated American Cotton compares favourably with that of Punjab or Pepsu. The standard yield in the Cambodia area is .75 bale per acre as against .82 in Pepsu, computed from an area of 1.1 lakh acre in Madras as compared to only .30 lakh acre in Pepsu. I may add that we are nevertheless pursuing intensive breeding work in improving the yield and quality of American Cotton. As regards attainment of targets, the additional production aimed at in this State was 47,000 bales for the year 1954-55 which has been reached.

15. In the Community Projects work, a system of Key Villagers' has been introduced to serve as a model for purpose of demonstration. This process of radiation is expected to be fruitful as it has been remarked that "life

like the river can obviously not move unless there is gradient on the soil through which it passes". In the Community Development Programme, it has been found that Harijans and Members of other backward communities are not able to contribute even in the shape of labour in view of their utter economic backwardness. The Government of India have therefore undertaken to meet 1/4th of the estimated cost of well works from the State funds on behalf of the Harijans, the remaining 3/4ths being met from the Community Project Funds. In the case of roads meant for the Harijan communities such as those leading to cherries, burial grounds and the like, the cost of land acquisition if necessary will also be met from Government funds set apart for Harijan Welfare. Similarly, in the case of school buildings, the expenditure will be shared equally between the fund set apart for the Harijan Welfare and the Community Development budget. This process of levelling up without losing time is necessary in order to bring about an all round community development.

16. The All India Khadi and Village Industries Board met here on the 18th and 19th instants. The Sarvodaya Exhibition at Teynempet was very impressive and it must be an eye opener to all about the possibilities of cottage scale industries in almost every line from basket making to fabrication of machinery.

17. The prices of foodgrains are not showing any marked trends but the situation requires to be watched. In his speech at Aduthurai, Sri Ajit Prasad Jain assured the agriculturists that Government would do all in their power to take necessary steps to prevent loss to ryots.

ENCLOSURE TO D.O. No. 153106 BIII/54-5, DATED 31-1-1955
FROM SHRI M. BHAKTAVATSALAM, MINISTER FOR AGRICULTURE, FORT ST. GEORGE, MADRAS TO DR. P. S. DESHMUKH, MINISTER FOR AGRICULTURE, GOVERNMENT OF INDIA, NEW DELHI.

The Department has been advocating low seed-rate for paddy for the last three decades and the seed rate in transplanted areas has been*more or less stabilised at 20 to 40 lbs. per acre. Experiments show that the best spacing for paddy in Madras State is 4" for short crops and 6" for long duration varieties. It will be seen that the rate of 40 lbs. for 4" spacing and 20 lbs. for 6" spacing is far less than the rate of 10 lbs. for 16" spacing which is advocated for

the Japanese method. In the nursery, all ryots use only a low seed rate in Madras, which is equal to one Madras measure, that is 2½ lbs. per cent. and it requires 8 to 12 cents to transplant an acre, and this applies to almost 75% of the paddy lands in Madras which are transplanted. It is only in the case of broadcast crops, especially in West Coast, that a higher seed rate of 60 to 70 lbs. is being used. In all other cases, only a low seed rate is being used for paddy, based on our experiments. It may, however, be stated that while in Madras a spacing of 4" for short crops, and 6" for long duration crops are found best suitable; the experiments in West Bengal show that a spacing of 4" is best and lower yield are not with 6" and 9" spacings. as reported in the proceedings of the Indian Council of Agricultural Research, during September 1954. In the Annual report of the Indian Council of Agricultural Research for 1953-54 the following results about the effect of spacings are recorded:—

"Rice Research Scheme, Jammu & Kashmir.—Closest spacing of 3" was significantly superior to 9" spacing and gave 43.8 and 69.3 per cent. more yield than 6" and 9" spacings respectively".

"Rice Breeding Scheme, Punjab.—Out of the various spacings tried, closest spacing of 6" × 6" gave significantly higher yield than 9" × 9" spacing which in turn out yielded significantly the widest spacing of 12" × 12". It will be seen that Madras is only using low seed rate compatible with experimental evidence in the State. The seed-rate suggested in the note of Indian Council of Agricultural Research was 20 lbs. per acre in 1953-54, and has been reduced to 14 lbs. this year. This is also the seed rate which is in use in some parts of this State. Considerable research on seed rate has been done in this State and these have shown that about 18 to 20 lbs. of seed sown in about 7 to 8 cents of land should be quite enough, to transplant an acre. But this is the optimum only for an ordinary variety like Nellore Samba or Krishna-kattukulu but will not apply to smaller and coarser grained varieties like Jeeragasamba which can be grown with a seed rate of only 8 to 12 lbs. of seed, while for larger grained Basangi, the seed rate should be much more than 20 lbs. A generalisation may, therefore, be misleading since the seed rate

has to be adjusted according to the size of the grain. Mortality in seed beds is also greater in finer varieties, but thick sowing has no such ill effects in coarse varieties. All these go to establish that prescription of one seed rate would be an over-simplification of the problem and would amount to an attempt at standardisation, where there is no scope for such rigid regimentation.

APPENDIX XXII

STATEMENT SHOWING ACTION TAKEN BY THE VARIOUS OFFICES CONCERNED ON THE RECOMMENDATION OF THE STATE MINISTER'S CONFERENCE HELD IN SEPTEMBER, 1953 REGARDING CONTACT BETWEEN FARM PUBLIC AND AGRICULTURAL RESEARCH INSTITUTIONS.

Indian Central Oilseeds Committee.—This committee is not in a position to implement the recommendations of the conference as it has no agricultural Research Institutes under its control.

Indian Central Arecanut Committee.—The I.C.A.C. has not yet set up a Central Research Station of its own. The recommendations of the Conference will be given effect to when the research station is established.

Central Tobacco Research Institute.—This Institute is trying to demonstrate the results of its researches among the farmers in various ways. A whole time demonstration Assistant has been engaged to contact and help the farmers with better methods of cultivation and curing. A farmers week is also celebrated at the Institute and the research stations. At the Institute an exhibition was also arranged and there was a fair attendance of visitors. The farmers were advised on the difficulties experienced by them.

Indian Central Coconut Committee.—This committee has already recognised the need to foster closer contact between the research workers and farmers. A "Farmers week and "Coconut Day" were accordingly organised in 1953-54 at the Central Coconut Research Stations, Kasaragod, and Kayangulam. These functions are proposed to be held regularly every year. Exhibitions are organised and special lectures on the various aspects of coconut cultivation, control of pests and diseases etc. are delivered in the regional language. The committee has decided that a training course of one month's duration, for not more than 10 persons should be conducted free of charge, in October and November every year at the Central Coconut Research

Station, Kasaragod and for a week at the Central Coconut Research Station, Kayangulam. The boarding, lodging and other expenses of the trainees will be met by them.

Indian Lac Cess Committee.—This committee has also recognised the need for closer contact between the farmers and the research stations under them. When the trainees are sent out on camps for field work they establish close contact with the villagers. The Committee is also considering the possibilities of inviting progressive farmers in the months of March, May, September and December to see the progress of crops.

Indian Agricultural Research Institute.—Demonstrations of improved practices in agriculture were given for 2 days on the 16th and 17th July, 1954 in the villages of Mundka and Qumaruddin Nagar of the Intensive Cultivation Scheme. Transplanting of paddy according to Japanese method was shown in Mundka and line sowing of Bajra was done in Qumaruddin Nagar. Also control measures against 'Kutra' (boring caterpillar) were demonstrated in Qumaruddin Nagar and leaflets in Hindi were distributed. Besides the Heads of Divisions of the Institute who attended the demonstration at Mundka, a large crowd from the neighbouring villages attended the demonstrations at the two centres and evinced great interest in the work. The Programme was arranged by the Agronomist Incharge of the Intensive Cultivation Scheme with the help of the Liaison Officer and Local staff. The demonstrations were a great success.

Sugarcane Breeding Institute (Coimbatore).—The cane growers in India and the various sugar factory estates have benefited considerably from the growing of Coimbatore canes and a perennial interest is shown by sugarcane growers and the factory estates in the characteristics and qualities of the new canes which are sent out from year to year. It is also proposed to invite six representatives of Cane Growers in the various States to the Institute for a week when they will have an opportunity of seeing the work done at this Institute.

APPENDIX XXIII

WORK DONE BY THE CENTRAL SOIL CONSERVATION BOARD

I. *Demonstration and Research.*

1. The Central Soil Conservation Board took over control of the Desert Afforestation Research Station at Jodhpur. Further with a view to conducting research on soil conservation and training of technical personnel on regional basis and linking with demonstration of approved soil conservation practices, the Board established research centres at Dehra Dun (U.P.), Kotah (Rajasthan), Bellary (Mysore) and Ootacamund (Madras). These Centres will deal with the problems of erosion in the Himalayas and the Siwaliks, ravines and alluvium, black cotton soil region (i.e. problems of black soils derived from granite and of erosion in the Nilgiris, respectively.

2. The Station at Jodhpur was established in October, 1952 with the object of evolving measures for checking advancement of the Rajasthan desert and overdue erosion of the soil. The Station has established a Central Nursery at Jodhpur to carry out research on silviculture of various indigenous as well as exotic species of desert plants which also serves to raise plants for distribution in afforestation station area and for road side plantation. In order to demonstrate methods of Desert Control the Station has created six blocks of land of 1,000 acres each with different types of soils scattered over the dry parts of Rajasthan for experimental purposes. The Station has raised shelterbelts, which the Fourth World Forestry Congress, held recently at Dehra Dun, recognised as playing a very important role in offering protection against wind and its erosive and desiccating effects. So far about 26 miles and 3 furlongs of selected roads and 900 feet railway lines have been planted by trees by this Station.

II. *Training:*

3. The Board has decided that officers of Agriculture, Forest and Engineering Departments, with scientific background should undergo a one year's course of training at

Dehra Dun. The officers and the subordinates of the other Departments like Revenue, Co-operative, Rural Development and Community Project will be trained for 3 months at the Regional Centres. The Senior Technical officers after undergoing 9 months training at Dehra Dun will too be deputed for three months training at the Regional Centres.

4. In addition to the above centres the Board has arranged training in soil conservation for the candidates deputed by the State Governments of Andhra, Madras, Madhya Pradesh and Orissa at Hazaribagh under the Damodar Valley Corporation. In all, nine candidates are undertaking training at this Centre at the instance of the Board.

III. Development:

5. The Board has also rendered financial assistance to the State Governments of Bombay, Hyderabad, Kutch, Madras, Punjab, Saurashtra, and Uttar Pradesh, in executing their soil Conservation and extension schemes. These schemes can be broadly grouped under 3 categories:—

- (1) for immobilisation of deserts,
- (2) for bunding and terracing etc.,
- (3) for afforestation ravines, badly gullied areas or denuded lands.

6. Upto the end of January, 1955, the Board had sanctioned subsidy to the tune of rupees four lakhs and approved loans of Rs. 24 lakhs in respect of the aforesaid schemes. The Board has recommended that in the 1st Five Year Period, the provision for soil conservation should be increased from Rs. one crore to rupees three crores. This recommendation has since been accepted by the Planning Commission.

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